

SEQUENCE LISTING

<110> Chen, Don J.

<120> NOVEL NUCLEAR RECEPTOR COREPRESSOR MOLECULES
AND USES THEREFOR

<130> UMG-030

<140>

<141>

<150> 60/193,138

<151> 2000-03-29

<160> 6

<170> PatentIn Ver. 2.0

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<212> DNA

<213> Homo sapiens

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gggcctggga gcagctcccc gccgaccccc accacc atg tcg ggc tcc aca cag 174
                                         Met Ser Gly Ser Thr Gln
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cct gtg gca cag acg tgg agg gcc act gag ccc cgc tac ccg ccc cac 222
Pro Val Ala Gln Thr Trp Arg Ala Thr Glu Pro Arg Tyr Pro Pro His
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agc ctt tcc tac cca gtg cag atc gcc cgg acg cac acg gac gtc ggg 270
Ser Leu Ser Tyr Pro Val Gln Ile Ala Arg Thr His Thr Asp Val Gly
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ctc ctg gag tac cag cac cac tcc cgc gac tat gcc tcc cac ctg tcg 318
Leu Leu Glu Tyr Gln His His Ser Arg Asp Tyr Ala Ser His Leu Ser
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Pro Gly Ser Ile Ile Gln Pro Gln Arg Arg Arg Pro Ser Leu Leu Ser
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Glu Phe Gln Pro Gly Asn Glu Arg Ser Gln Glu Leu His Leu Arg Pro
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Glu Ser His Ser Tyr Leu Pro Glu Leu Gly Lys Ser Glu Met Glu Phe
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|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| att Ile | gaa Glu | agc Ser 105 | aag Lys | cgc Arg | cct Pro | cgg Arg | cta Leu 110 | gag Glu | ctg Leu | ctg Leu | cct Pro | gac Asp 115 | ccc Pro | ctg Leu | ctg Leu | 510 |
| cga Arg | ccg Pro 120 | tca Ser | ccc Pro | ctg Leu | ctg Leu | gcc Ala 125 | acg Thr | ggc Gly | cag Gln | cct Pro | gcg Ala 130 | gga Gly | tct Ser | gaa Glu | gac Asp | 558 |
| ctc Leu 135 | acc Thr | aag Lys | gac Asp | cgt Arg | agc Ser 140 | ctg Leu | acg Thr | ggc Gly | aag Lys | ctg Leu 145 | gaa Glu | ccg Pro | gtg Val | tct Ser | ccc Pro 150 | 606 |
| ccc Pro | agc Ser | ccc Pro | ccg Pro | cac His 155 | act Thr | gac Asp | cct Pro | gag Glu | ctg Leu 160 | gag Glu | ctg Leu | gtg Val | ccg Pro | cca Pro 165 | cgg Arg | 654 |
| ctg Leu | tcc Ser | aag Lys | gag Glu 170 | gag Glu | ctg Leu | atc Ile | cag Gln | aac Asn 175 | atg Met | gac Asp | cgc Arg | gtg Val 180 | gac Asp | cga Arg | gag Glu | 702 |
| atc Ile | acc Thr 185 | atg Met | gta Val | gag Glu | cag Gln | cag Gln | atc Ile 190 | tct Ser | aag Lys | ctg Leu | aag Lys 195 | aag Lys | aag Lys | cag Gln | caa Gln | 750 |
| cag Gln 200 | ctg Leu | gag Glu | gag Glu | gag Glu | gct Ala | gcc Ala 205 | aag Lys | ccg Pro | ccc Pro | gag Glu | cct Pro 210 | gag Glu | aag Lys | ccc Pro | gtg Val | 798 |
| tca Ser 215 | ccg Pro | ccg Pro | ccc Pro | atc Ile | gag Glu 220 | tcg Ser | aag Lys | cac His | cgc Arg | agc Ser 225 | ctg Leu | gtg Val | cag Gln | atc Ile | atc Ile 230 | 846 |
| tac Tyr | gac Asp | gag Glu | aac Asn | cgg Arg 235 | aag Lys | aag Lys | gct Ala | gaa Glu | gct Ala 240 | gca Ala | cat His | cgg Arg | att Ile | ctg Leu 245 | gaa Glu | 894 |
| ggc Gly | ctg Leu | ggg Gly | ccc Pro 250 | cag Gln | gtg Val | gag Glu | ctg Leu | ccg Pro 255 | ctg Leu | tac Tyr | aac Asn | cag Gln | ccc Pro 260 | tcc Ser | gac Asp | 942 |
| acc Thr | cgg Arg | cag Gln 265 | tat Tyr | cat His | gag Glu | aac Asn | atc Ile 270 | aaa Lys | ata Ile | aac Asn | cag Gln | gcg Ala 275 | atg Met | cgg Arg | aag Lys | 990 |
| aag Lys | cta Leu 280 | atc Ile | ttg Leu | tac Tyr | ttc Phe | aag Lys 285 | agg Arg | agg Arg | aat Asn | cac His | gct Ala 290 | cgg Arg | aaa Lys | caa Gln | tgg Trp | 1038 |
| gag Glu 295 | cag Gln | aag Lys | ttc Phe | tgc Cys | cag Gln 300 | cgc Arg | tat Tyr | gac Asp | cag Gln | ctc Leu 305 | atg Met | gag Glu | gcc Ala | tgg Trp 310 | gag Glu | 1086 |
| aag Lys | aag Lys | gtg Val | gag Glu | cgc Arg 315 | atc Ile | gag Glu | aac Asn | aac Asn | ccc Pro 320 | cgg Arg | cgg Arg | cgg Arg | gcc Ala | aag Lys 325 | gag Glu | 1134 |
| agc Ser | aag Lys | gtt Val | cgc Arg 330 | gag Glu | tac Tyr | tac Tyr | gag Glu 335 | aag Lys | cag Gln | ttc Phe | cct Pro | gag Glu 340 | atc Ile | cgc Arg | aag Lys | 1182 |
| cag | cgc | gag | ctg | cag | gag | cgc | atg | cag | agg | gtg | ggc | cag | cgg | ggc | agt | 1230 |

| Gln | Arg | Glu | Leu | Gln | Glu | Arg | Met | Gln | Arg | Val | Gly | Gln | Arg | Gly | Ser | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|
| 345 | | | | | | | | | | | | | | | | 350 | | |
| ggg | ctg | tcc | atg | tcg | ccc | gcc | cgc | agc | gag | cac | gag | gtg | tca | gag | atc | 1278 | | |
| Gly | Leu | Ser | Met | Ser | Pro | Ala | Arg | Ser | Glu | His | Glu | Val | Ser | Glu | Ile | | | |
| 360 | | | | | | | | | | | | | | | | 365 | 370 | |
| atc | gat | ggc | ctc | tca | gag | cag | gag | aac | ctg | gag | aag | cag | atg | cgc | cag | 1326 | | |
| Ile | Asp | Gly | Leu | Ser | Glu | Gln | Glu | Asn | Leu | Glu | Lys | Gln | Met | Arg | Gln | | | |
| 375 | | | | | | | | | | | | | | | | 380 | 385 | 390 |
| ctg | gcc | gtg | atc | ccg | ccc | atg | ctg | tac | gac | gct | gac | cag | cag | cgc | atc | 1374 | | |
| Leu | Ala | Val | Ile | Pro | Pro | Met | Leu | Tyr | Asp | Ala | Asp | Gln | Gln | Arg | Ile | | | |
| 395 | | | | | | | | | | | | | | | | 400 | 405 | |
| aag | ttc | atc | aac | atg | aac | ggg | ctt | atg | gcc | gac | ccc | atg | aag | gtg | tac | 1422 | | |
| Lys | Phe | Ile | Asn | Met | Asn | Gly | Leu | Met | Ala | Asp | Pro | Met | Lys | Val | Tyr | | | |
| 410 | | | | | | | | | | | | | | | | 415 | 420 | |
| aaa | gac | cgc | cag | gtc | atg | aac | atg | tgg | agt | gag | cag | gag | aag | gag | acc | 1470 | | |
| Lys | Asp | Arg | Gln | Val | Met | Asn | Met | Trp | Ser | Glu | Gln | Glu | Lys | Glu | Thr | | | |
| 425 | | | | | | | | | | | | | | | | 430 | 435 | |
| ttc | cgg | gag | aag | ttc | atg | cag | cat | ccc | aag | aac | ttt | ggc | ctg | atc | gca | 1518 | | |
| Phe | Arg | Glu | Lys | Phe | Met | Gln | His | Pro | Lys | Asn | Phe | Gly | Leu | Ile | Ala | | | |
| 440 | | | | | | | | | | | | | | | | 445 | 450 | |
| tca | ttc | ctg | gag | agg | aag | aca | gtg | gct | gag | tgc | gtc | ctc | tat | tac | tac | 1566 | | |
| Ser | Phe | Leu | Glu | Arg | Lys | Thr | Val | Ala | Glu | Cys | Val | Leu | Tyr | Tyr | Tyr | | | |
| 455 | | | | | | | | | | | | | | | | 460 | 465 | 470 |
| ctg | act | aag | aag | aat | gag | aac | tat | aag | agc | ctg | gtg | aga | cgg | agc | tat | 1614 | | |
| Leu | Thr | Lys | Lys | Asn | Glu | Asn | Tyr | Lys | Ser | Leu | Val | Arg | Arg | Ser | Tyr | | | |
| 475 | | | | | | | | | | | | | | | | 480 | 485 | |
| cgg | cgc | cgc | ggc | aag | agc | cag | cag | caa | caa | cag | cag | cag | cag | cag | cag | 1662 | | |
| Arg | Arg | Arg | Gly | Lys | Ser | Gln | Gln | Gln | Gln | Gln | Gln | Gln | Gln | Gln | Gln | | | |
| 490 | | | | | | | | | | | | | | | | 495 | 500 | |
| cag | cag | cag | cag | cag | cag | cag | ccc | atg | ccc | cgc | agc | agc | cag | gag | gag | 1710 | | |
| Gln | Gln | Gln | Gln | Gln | Gln | Gln | Pro | Met | Pro | Arg | Ser | Ser | Gln | Glu | Glu | | | |
| 505 | | | | | | | | | | | | | | | | 510 | 515 | |
| aaa | gat | gag | aag | gag | aag | gaa | aag | gag | gcg | gag | aag | gag | gag | gag | aag | 1758 | | |
| Lys | Asp | Glu | Lys | Glu | Lys | Glu | Lys | Glu | Ala | Glu | Lys | Glu | Glu | Glu | Lys | | | |
| 520 | | | | | | | | | | | | | | | | 525 | 530 | |
| ccg | gag | gtg | gag | aac | gac | aag | gaa | gac | ctc | ctc | aag | gag | aag | aca | gac | 1806 | | |
| Pro | Glu | Val | Glu | Asn | Asp | Lys | Glu | Asp | Leu | Leu | Lys | Glu | Lys | Thr | Asp | | | |
| 535 | | | | | | | | | | | | | | | | 540 | 545 | 550 |
| gac | acc | tca | ggg | gag | gac | aac | gac | gag | aag | gag | gct | gtg | gcc | tcc | aaa | 1854 | | |
| Asp | Thr | Ser | Gly | Glu | Asp | Asn | Asp | Glu | Lys | Glu | Ala | Val | Ala | Ser | Lys | | | |
| 555 | | | | | | | | | | | | | | | | 560 | 565 | |
| ggc | cgc | aaa | act | gcc | aac | agc | cag | gga | aga | cgc | aaa | ggc | cgc | atc | acc | 1902 | | |
| Gly | Arg | Lys | Thr | Ala | Asn | Ser | Gln | Gly | Arg | Arg | Lys | Gly | Arg | Ile | Thr | | | |
| 570 | | | | | | | | | | | | | | | | 575 | 580 | |
| cgc | tca | atg | gct | aat | gag | gcc | aac | agc | gag | gag | gcc | atc | acc | ccc | cag | 1950 | | |
| Arg | Ser | Met | Ala | Asn | Glu | Ala | Asn | Ser | Glu | Glu | Ala | Ile | Thr | Pro | Gln | | | |

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|--|
| 585 | | | | | 590 | | | | | | 595 | | | | | | | |
| cag | agc | gcc | gag | ctg | gcc | tcc | atg | gag | ctg | aat | gag | agt | tct | cgc | tgg | 1998 | | |
| Gln | Ser | Ala | Glu | Leu | Ala | Ser | Met | Glu | Leu | Asn | Glu | Ser | Ser | Arg | Trp | | | |
| 600 | | | | | 605 | | | | | | 610 | | | | | | | |
| aca | gaa | gaa | gaa | atg | gaa | aca | gcc | aag | aaa | ggg | ctc | ctg | gaa | cac | ggc | 2046 | | |
| Thr | Glu | Glu | Glu | Met | Glu | Thr | Ala | Lys | Lys | Gly | Leu | Leu | Glu | His | Gly | | | |
| 615 | | | | | 620 | | | | | | 625 | | | | | | 630 | |
| cgc | aac | tgg | tcg | gcc | atc | gcc | cgg | atg | gtg | ggc | tcc | aag | act | gtg | tcg | 2094 | | |
| Arg | Asn | Trp | Ser | Ala | Ile | Ala | Arg | Met | Val | Gly | Ser | Lys | Thr | Val | Ser | | | |
| 635 | | | | | 640 | | | | | | 645 | | | | | | | |
| cag | tgt | aag | aac | ttc | tac | ttc | aac | tac | aag | aag | agg | cag | aac | ctc | gat | 2142 | | |
| Gln | Cys | Lys | Asn | Phe | Tyr | Phe | Asn | Tyr | Lys | Lys | Arg | Gln | Asn | Leu | Asp | | | |
| 650 | | | | | 655 | | | | | | 660 | | | | | | | |
| gag | atc | ttg | cag | cag | cac | aag | ctg | aag | atg | gag | aag | gag | agg | aac | gcg | 2190 | | |
| Glu | Ile | Leu | Gln | Gln | His | Lys | Leu | Lys | Met | Glu | Lys | Glu | Arg | Asn | Ala | | | |
| 665 | | | | | 670 | | | | | | 675 | | | | | | | |
| cgg | agg | aag | aag | aag | aaa | gcg | ccg | gcg | gcg | gcc | agc | gag | gag | gct | gca | 2238 | | |
| Arg | Arg | Lys | Lys | Lys | Lys | Ala | Pro | Ala | Ala | Ala | Ser | Glu | Glu | Ala | Ala | | | |
| 680 | | | | | 685 | | | | | | 690 | | | | | | | |
| ttc | ccg | ccc | gtg | gtg | gag | gat | gag | gag | atg | gag | gcg | tcg | ggc | gtg | acg | 2286 | | |
| Phe | Pro | Pro | Val | Val | Glu | Asp | Glu | Glu | Met | Glu | Ala | Ser | Gly | Val | Thr | | | |
| 695 | | | | | 700 | | | | | | 705 | | | | | | 710 | |
| gga | aat | gag | gag | gag | atg | gtg | gag | gag | gct | gaa | gcc | act | gtc | aac | aac | 2334 | | |
| Gly | Asn | Glu | Glu | Glu | Met | Val | Glu | Glu | Ala | Glu | Ala | Thr | Val | Asn | Asn | | | |
| 715 | | | | | 720 | | | | | | 725 | | | | | | | |
| agc | tca | gac | acc | gag | agc | atc | ccc | tct | cct | cac | act | gag | gcc | gcc | aag | 2382 | | |
| Ser | Ser | Asp | Thr | Glu | Ser | Ile | Pro | Ser | Pro | His | Thr | Glu | Ala | Ala | Lys | | | |
| 730 | | | | | 735 | | | | | | 740 | | | | | | | |
| gac | aca | ggg | cag | aat | ggg | ccc | aag | ccc | cca | gcc | acc | ctg | ggc | gcc | gac | 2430 | | |
| Asp | Thr | Gly | Gln | Asn | Gly | Pro | Lys | Pro | Pro | Ala | Thr | Leu | Gly | Ala | Asp | | | |
| 745 | | | | | 750 | | | | | | 755 | | | | | | | |
| ggg | cca | ccc | cca | ggg | cca | ccc | acc | cca | cca | ccg | gag | gac | atc | ccg | gcc | 2478 | | |
| Gly | Pro | Pro | Pro | Gly | Pro | Pro | Thr | Pro | Pro | Pro | Glu | Asp | Ile | Pro | Ala | | | |
| 760 | | | | | 765 | | | | | | 770 | | | | | | | |
| ccc | act | gag | tcc | acc | ccg | gcc | tct | gaa | gcc | acc | tta | gcc | cct | acg | ccc | 2526 | | |
| Pro | Thr | Glu | Ser | Thr | Pro | Ala | Ser | Glu | Ala | Thr | Leu | Ala | Pro | Thr | Pro | | | |
| 775 | | | | | 780 | | | | | | 785 | | | | | | 790 | |
| cca | cca | gca | ccc | cca | ttt | ccc | tct | tca | cct | cct | cct | gtg | gtc | ccc | aag | 2574 | | |
| Pro | Pro | Ala | Pro | Pro | Phe | Pro | Ser | Ser | Pro | Pro | Pro | Val | Val | Pro | Lys | | | |
| 795 | | | | | 800 | | | | | | 805 | | | | | | | |
| gag | gag | aag | gag | gag | gag | acc | gca | gca | gcg | ccc | cca | gtg | gag | gag | ggg | 2622 | | |
| Glu | Glu | Lys | Glu | Glu | Glu | Thr | Ala | Ala | Ala | Pro | Pro | Val | Glu | Glu | Gly | | | |
| 810 | | | | | 815 | | | | | | 820 | | | | | | | |
| gag | gag | cag | aag | ccc | ccc | gcg | gct | gag | gag | ctg | gca | gtg | gac | aca | ggg | 2670 | | |
| Glu | Glu | Gln | Lys | Pro | Pro | Ala | Ala | Glu | Glu | Leu | Ala | Val | Asp | Thr | Gly | | | |
| 825 | | | | | 830 | | | | | | 835 | | | | | | | |

| | |
|---|------|
| aag gcc gag gag ccc gtc aag agc gag tgc acg gag gaa gcc gag gag | 2718 |
| Lys Ala Glu Glu Pro Val Lys Ser Glu Cys Thr Glu Glu Ala Glu Glu | |
| 840 845 850 | |
| ggg ccg gcc aag ggc aag gac gcg gag gcc gct gag gcc acg gcc gag | 2766 |
| Gly Pro Ala Lys Gly Lys Asp Ala Glu Ala Ala Glu Ala Thr Ala Glu | |
| 855 860 865 870 | |
| agg gcg ctc aag gca gag aag aag gag ggc ggg agc ggc agg gcc acc | 2814 |
| Arg Ala Leu Lys Ala Glu Lys Lys Glu Gly Gly Ser Gly Arg Ala Thr | |
| 875 880 885 | |
| aca gcc aag agc tcg ggc gcc ccc cag gac agc gac tcc agt gcc acc | 2862 |
| Thr Ala Lys Ser Ser Gly Ala Pro Gln Asp Ser Asp Ser Ser Ala Thr | |
| 890 895 900 | |
| tgc agt gca gac gag gtg gat gag gcc gag ggc ggc gac aag aac cgg | 2910 |
| Cys Ser Ala Asp Glu Val Asp Glu Ala Glu Gly Gly Asp Lys Asn Arg | |
| 905 910 915 | |
| ctg ctg tcc cca agg ccc agc ctc ctc acc ccg act ggc gac ccc cgg | 2958 |
| Leu Leu Ser Pro Arg Pro Ser Leu Leu Thr Pro Thr Gly Asp Pro Arg | |
| 920 925 930 | |
| gcc aat gcc tca ccc cag aag cca ctg gac ctg aag cag ctg aag cag | 3006 |
| Ala Asn Ala Ser Pro Gln Lys Pro Leu Asp Leu Lys Gln Leu Lys Gln | |
| 935 940 945 950 | |
| cga gcg gct gcc atc ccc ccc atc cag gtc acc aaa gtc cat gag ccc | 3054 |
| Arg Ala Ala Ala Ile Pro Pro Ile Gln Val Thr Lys Val His Glu Pro | |
| 955 960 965 | |
| ccc ccg gag gac gca gct ccc acc aag cca gct ccc cca gcc cca ccg | 3102 |
| Pro Arg Glu Asp Ala Ala Pro Thr Lys Pro Ala Pro Pro Ala Pro Pro | |
| 970 975 980 | |
| cca ccg caa aac ctg cag ccg gag agc gac gcc cct cag cag cct ggc | 3150 |
| Pro Pro Gln Asn Leu Gln Pro Glu Ser Asp Ala Pro Gln Gln Pro Gly | |
| 985 990 995 | |
| agc agc ccc ccg ggc aag agc agg agc ccg gca ccc ccc gcc gac aag | 3198 |
| Ser Ser Pro Arg Gly Lys Ser Arg Ser Pro Ala Pro Pro Ala Asp Lys | |
| 1000 1005 1010 | |
| gag gca gag aag cct gtg ttc ttc cca gcc ttc gca gcc gag gcc cag | 3246 |
| Glu Ala Glu Lys Pro Val Phe Phe Pro Ala Phe Ala Ala Glu Ala Gln | |
| 1015 1020 1025 1030 | |
| aag ctg cct ggg gac ccc cct tgc tgg act tcc ggc ctg ccc ttc ccc | 3294 |
| Lys Leu Pro Gly Asp Pro Pro Cys Trp Thr Ser Gly Leu Pro Phe Pro | |
| 1035 1040 1045 | |
| gtg ccc ccc cgt gag gtg atc aag gcc tcc ccg cat gcc ccg gac ccc | 3342 |
| Val Pro Pro Arg Glu Val Ile Lys Ala Ser Pro His Ala Pro Asp Pro | |
| 1050 1055 1060 | |
| tca gcc ttc tcc tac gct cca cct ggt cac cca ctg ccc ctg ggc ctc | 3390 |
| Ser Ala Phe Ser Tyr Ala Pro Pro Gly His Pro Leu Pro Leu Gly Leu | |
| 1065 1070 1075 | |

102220 10161500

| | | | | | | | | | | | | | | | | |
|--------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------|
| cat His 1080 | gac Asp | act Thr | gcc Ala | cgg Arg | ccc Pro | gtc Val | ctg Leu | ccg Pro | cgc Arg | cca Pro | ccc Pro | acc Thr | atc Ile | tcc Ser | aac Asn | 3438 |
| ccg Pro 1095 | cct Pro | ccc Pro | ctc Leu | atc Ile | tcc Ser | tct Ser | gcc Ala | aag Lys | cac His | ccc Pro | agc Ser | gtc Val | ctc Leu | gag Glu | agg Arg | 3486 |
| caa Gln | ata Ile | ggt Gly | gcc Ala | atc Ile | tcc Ser | caa Gln | gga Gly | atg Met | tcg Ser | gtc Val | cag Gln | ctc Leu | cac His | gtc Val | ccg Pro | 3534 |
| tac Tyr | tca Ser | gag Glu | cat His | gcc Ala | aag Lys | gcc Ala | ccg Pro | gtg Val | ggc Gly | cct Pro | gtc Val | acc Thr | atg Met | ggg Gly | ctg Leu | 3582 |
| ccc Pro | ctg Leu | ccc Pro | atg Met | gac Asp | ccc Pro | aaa Lys | aag Lys | ctg Leu | gca Ala | ccc Pro | ttc Phe | agc Ser | gga Gly | gtg Val | aag Lys | 3630 |
| cag Gln | gag Glu | cag Gln | ctg Leu | tcc Ser | cca Pro | cgg Arg | ggc Gly | cag Gln | gct Ala | ggg Gly | cca Pro | ccg Pro | gag Glu | agc Ser | ctg Leu | 3678 |
| ggg Gly | gtg Val | ccc Pro | aca Thr | gcc Ala | cag Gln | gag Glu | gcg Ala | tcc Ser | gtg Val | ctg Leu | aga Arg | ggg Gly | aca Thr | gct Ala | ctg Leu | 3726 |
| ggc Gly | tca Ser | gtt Val | ccg Pro | ggc Gly | gga Gly | agc Ser | atc Ile | acc Thr | aaa Lys | ggc Gly | att Ile | ccc Pro | agc Ser | aca Thr | cgg Arg | 3774 |
| gtg Val | ccc Pro | tcg Ser | gac Asp | agc Ser | gcc Ala | atc Ile | aca Thr | tac Tyr | cgc Arg | ggc Gly | tcc Ser | atc Ile | acc Thr | cac His | ggc Gly | 3822 |
| acg Thr | cca Pro | gct Ala | gac Asp | gtc Val | ctg Leu | tac Tyr | aag Lys | ggc Gly | acc Thr | atc Ile | acc Thr | agg Arg | atc Ile | atc Ile | ggc Gly | 3870 |
| gag Glu | gac Asp | agc Ser | ccg Pro | agt Ser | cgc Arg | ttg Leu | gac Asp | cgc Arg | ggc Gly | cgg Arg | gag Glu | gac Asp | agc Ser | ctg Leu | ccc Pro | 3918 |
| aag Lys | ggc Gly | cac His | gtc Val | atc Ile | tac Tyr | gaa Glu | ggc Gly | aag Lys | aag Lys | ggc Gly | cac His | gtc Val | ttg Leu | tcc Ser | tat Tyr | 3966 |
| gag Glu | ggt Gly | ggc Gly | atg Met | tct Ser | gtg Val | acc Thr | cag Gln | tgc Cys | tcc Ser | aag Lys | gag Glu | gac Asp | ggc Gly | aga Arg | agc Ser | 4014 |
| agc Ser | tca Ser | gga Gly | ccc Pro | ccc Pro | cat His | gag Glu | acg Thr | gcc Ala | gcc Ala | ccc Pro | aag Lys | cgc Arg | acc Thr | tat Tyr | gac Asp | 4062 |
| atg Met | atg Met | gag Glu | ggc Gly | cgc Arg | gtg Val | ggc Gly | aga Arg | gcc Ala | atc Ile | tcc Ser | tca Ser | gcc Ala | agc Ser | atc Ile | gaa Glu | 4110 |
| ggt Glu | ctc Glu | atg Glu | ggc Gly | cgt Glu | gcc Glu | atc Glu | ccg Glu | ccg Glu | gag Glu | cga Glu | cac Glu | agc Glu | ccc Glu | cac Glu | cac Glu | 4158 |

| | | | | | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Gly | Leu | Met | Gly | Arg | Ala | Ile | Pro | Pro | Glu | Arg | His | Ser | Pro | His | His | |
| 1320 | | | | | | 1325 | | | | | 1330 | | | | | |
| ctc | aaa | gag | cag | cac | cac | atc | cgc | ggg | tcc | atc | aca | caa | ggg | atc | cct | 4206 |
| Leu | Lys | Glu | Gln | His | His | Ile | Arg | Gly | Ser | Ile | Thr | Gln | Gly | Ile | Pro | |
| 1335 | | | | | 1340 | | | | | 1345 | | | | | 1350 | |
| cgg | tcc | tac | gtg | gag | gca | cag | gag | gac | tac | ctg | cgt | cgg | gag | gcc | aag | 4254 |
| Arg | Ser | Tyr | Val | Glu | Ala | Gln | Glu | Asp | Tyr | Leu | Arg | Arg | Glu | Ala | Lys | |
| | | | | 1355 | | | | | 1360 | | | | | 1365 | | |
| ctc | cta | aag | cgg | gag | ggc | acg | cct | ccg | ccc | cca | ccg | ccc | tca | cgg | gac | 4302 |
| Leu | Leu | Lys | Arg | Glu | Gly | Thr | Pro | Pro | Pro | Pro | Pro | Pro | Ser | Arg | Asp | |
| | | | 1370 | | | | | 1375 | | | | | 1380 | | | |
| ctg | acc | gag | gcc | tac | aag | acg | cag | gcc | ctg | ggc | ccc | ctg | aag | ctg | aag | 4350 |
| Leu | Thr | Glu | Ala | Tyr | Lys | Thr | Gln | Ala | Leu | Gly | Pro | Leu | Lys | Leu | Lys | |
| | | 1385 | | | | | 1390 | | | | | 1395 | | | | |
| ccg | gcc | cat | gag | ggc | ctg | gtg | gcc | acg | gtg | aag | gag | gcg | ggc | cgc | tcc | 4398 |
| Pro | Ala | His | Glu | Gly | Leu | Val | Ala | Thr | Val | Lys | Glu | Ala | Gly | Arg | Ser | |
| | 1400 | | | | | 1405 | | | | | 1410 | | | | | |
| atc | cat | gag | atc | ccg | cgc | gag | gag | ctg | cgg | cac | acg | ccc | gag | ctg | ccc | 4446 |
| Ile | His | Glu | Ile | Pro | Arg | Glu | Glu | Leu | Arg | His | Thr | Pro | Glu | Leu | Pro | |
| 1415 | | | | | 1420 | | | | | 1425 | | | | | 1430 | |
| ctg | gcc | ccg | cgg | ccg | ctc | aag | gag | ggc | tcc | atc | acg | cag | ggc | acc | ccg | 4494 |
| Leu | Ala | Pro | Arg | Pro | Leu | Lys | Glu | Gly | Ser | Ile | Thr | Gln | Gly | Thr | Pro | |
| | | | | 1435 | | | | | 1440 | | | | | 1445 | | |
| ctc | aag | tac | gac | acc | ggc | gcg | tcc | acc | act | ggc | tcc | aaa | aag | cac | gac | 4542 |
| Leu | Lys | Tyr | Asp | Thr | Gly | Ala | Ser | Thr | Thr | Gly | Ser | Lys | Lys | His | Asp | |
| | | 1450 | | | | | | 1455 | | | | | 1460 | | | |
| gta | cgc | tcc | ctc | atc | ggc | agc | ccc | ggc | cgg | acg | ttc | cca | ccc | gtg | cac | 4590 |
| Val | Arg | Ser | Leu | Ile | Gly | Ser | Pro | Gly | Arg | Thr | Phe | Pro | Pro | Val | His | |
| | | 1465 | | | | | 1470 | | | | | 1475 | | | | |
| ccg | ctg | gat | gtg | atg | gcc | gac | gcc | cgg | gca | ctg | gaa | cgt | gcc | tgc | tac | 4638 |
| Pro | Leu | Asp | Val | Met | Ala | Asp | Ala | Arg | Ala | Leu | Glu | Arg | Ala | Cys | Tyr | |
| | 1480 | | | | | 1485 | | | | | 1490 | | | | | |
| gag | gag | agc | ctg | aag | agc | cgg | cca | ggg | acc | gcc | agc | agc | tcg | ggg | ggc | 4686 |
| Glu | Glu | Ser | Leu | Lys | Ser | Arg | Pro | Gly | Thr | Ala | Ser | Ser | Ser | Gly | Gly | |
| 1495 | | | | | 1500 | | | | | 1505 | | | | | 1510 | |
| tcc | att | gcg | cgc | ggc | gcc | ccg | gtc | att | gtg | cct | gag | ctg | ggt | aag | ccg | 4734 |
| Ser | Ile | Ala | Arg | Gly | Ala | Pro | Val | Ile | Val | Pro | Glu | Leu | Gly | Lys | Pro | |
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| cgg | cag | agc | ccc | ctg | acc | tat | gag | gac | cac | ggg | gca | ccc | ttt | gcc | ggc | 4782 |
| Arg | Gln | Ser | Pro | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | |
|------|-----|-----|-----|------|-----|-----|-----|------|-----|-----|-----|------|-----|-----|-----|------|
| 1560 | | | | 1565 | | | | 1570 | | | | | | | | |
| ctg | acg | tcg | acg | cct | cgt | gag | atc | gcc | aag | tcc | ccg | cac | agc | acc | gtg | 4926 |
| Leu | Thr | Ser | Thr | Pro | Arg | Glu | Ile | Ala | Lys | Ser | Pro | His | Ser | Thr | Val | |
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| ccc | gag | cac | cac | cca | cac | ccc | atc | tcg | ccc | tat | gag | cac | ctg | ctt | cgg | 4974 |
| Pro | Glu | His | His | Pro | His | Pro | Ile | Ser | Pro | Tyr | Glu | His | Leu | Leu | Arg | |
| 1595 | | | | 1600 | | | | 1605 | | | | | | | | |
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| Gly | Val | Ser | Gly | Val | Asp | Leu | Tyr | Arg | Ser | His | Ile | Pro | Leu | Ala | Phe | |
| 1610 | | | | 1615 | | | | 1620 | | | | | | | | |
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| gac | ccc | acc | tcc | ata | ccc | cgc | ggc | atc | cct | ctg | gac | gca | gcc | gct | gcc | 5070 |
| Asp | Pro | Thr | Ser | Ile | Pro | Arg | Gly | Ile | Pro | Leu | Asp | Ala | Ala | Ala | Ala | |
| 1625 | | | | 1630 | | | | 1635 | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| tac | tac | ctg | ccc | cga | cac | ctg | gcc | ccc | aac | ccc | acc | tac | ccg | cac | ctg | 5118 |
| Tyr | Tyr | Leu | Pro | Arg | His | Leu | Ala | Pro | Asn | Pro | Thr | Tyr | Pro | His | Leu | |
| 1640 | | | | 1645 | | | | 1650 | | | | | | | | |
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| tac | cca | ccc | tac | ctc | atc | cgc | ggc | tac | ccc | gac | acg | gcg | gcg | ctg | gag | 5166 |
| Tyr | Pro | Pro | Tyr | Leu | Ile | Arg | Gly | Tyr | Pro | Asp | Thr | Ala | Ala | Leu | Glu | |
| 1655 | | | | 1660 | | | | 1665 | | | | 1670 | | | | |
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| aac | cgg | cag | acc | atc | atc | aat | gac | tac | atc | acc | tcg | cag | cag | atg | cac | 5214 |
| Asn | Arg | Gln | Thr | Ile | Ile | Asn | Asp | Tyr | Ile | Thr | Ser | Gln | Gln | Met | His | |
| 1675 | | | | 1680 | | | | 1685 | | | | | | | | |
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| cac | aac | acg | gcc | acc | gcc | atg | gcc | cag | cga | gct | gat | atg | ctg | agg | ggc | 5262 |
| His | Asn | Thr | Ala | Thr | Ala | Met | Ala | Gln | Arg | Ala | Asp | Met | Leu | Arg | Gly | |
| 1690 | | | | 1695 | | | | 1700 | | | | | | | | |
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| ctc | tcg | ccc | cgc | gag | tcc | tcg | ctg | gca | ctc | aac | tac | gct | gcg | ggt | ccc | 5310 |
| Leu | Ser | Pro | Arg | Glu | Ser | Ser | Leu | Ala | Leu | Asn | Tyr | Ala | Ala | Gly | Pro | |
| 1705 | | | | 1710 | | | | 1715 | | | | | | | | |
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| cga | ggc | atc | atc | gac | ctg | tcc | caa | gtg | cca | cac | ctg | cct | gtg | ctc | gtg | 5358 |
| Arg | Gly | Ile | Ile | Asp | Leu | Ser | Gln | Val | Pro | His | Leu | Pro | Val | Leu | Val | |
| 1720 | | | | 1725 | | | | 1730 | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| ccc | ccg | aca | cca | ggc | acc | cca | gcc | acc | gcc | atg | gac | cgc | ctt | gcc | tac | 5406 |
| Pro | Pro | Thr | Pro | Gly | Thr | Pro | Ala | Thr | Ala | Met | Asp | Arg | Leu | Ala | Tyr | |
| 1735 | | | | 1740 | | | | 1745 | | | | 1750 | | | | |
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| Leu | Pro | Thr | Ala | Pro | Gln | Pro | Phe | Ser | Ser | Arg | His | Ser | Ser | Ser | Pro | |
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| | | | | | | | | | | | | | | | | |
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| Leu | Ser | Pro | Gly | Gly | Pro | Thr | His | Leu | Thr | Lys | Pro | Thr | Thr | Thr | Ser | |
| 1770 | | | | 1775 | | | | 1780 | | | | | | | | |
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| tcg | tcc | gag | cgg | gag | cga | gac | cgg | gat | cga | gag | cgg | gac | cgg | gat | cgg | 5550 |
| Ser | Ser | Glu | Arg | Glu | Arg | Asp | Arg | Asp | Arg | Glu | Arg | Asp | Arg | Asp | Arg | |
| 1785 | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | |
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| Pro | Ile | Trp | Arg | Pro | Gly | Thr | Glu | Gln | Ser | Ser | Gly | Ser | Ser | Gly | Ser | |
| 1815 | | | | 1820 | | | | | 1825 | | | | | 1830 | | |
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| Ser | Gly | Gly | Gly | Gly | Gly | Ser | Ser | Ser | Arg | Pro | Ala | Ser | His | Ser | His | |
| | | | | 1835 | | | | 1840 | | | | | 1845 | | | |
| gcc | cac | cag | cac | tcg | ccc | atc | tcc | cct | cgg | acc | cag | gat | gcc | ctc | cag | 5742 |
| Ala | His | Gln | His | Ser | Pro | Ile | Ser | Pro | Arg | Thr | Gln | Asp | Ala | Leu | Gln | |
| | | | | 1850 | | | | 1855 | | | | 1860 | | | | |
| cag | aga | ccc | agt | gtg | ctt | cac | aac | aca | ggc | atg | aag | ggt | atc | atc | acc | 5790 |
| Gln | Arg | Pro | Ser | Val | Leu | His | Asn | Thr | Gly | Met | Lys | Gly | Ile | Ile | Thr | |
| | | 1865 | | | | | 1870 | | | | 1875 | | | | | |
| gct | gtg | gag | ccc | agc | aag | ccc | acg | gtc | ctg | agg | tcc | acc | tcc | acc | tcc | 5838 |
| Ala | Val | Glu | Pro | Ser | Lys | Pro | Thr | Val | Leu | Arg | Ser | Thr | Ser | Thr | Ser | |
| | 1880 | | | | | 1885 | | | | 1890 | | | | | | |
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| Ser | Pro | Val | Arg | Pro | Ala | Ala | Thr | Phe | Pro | Pro | Ala | Thr | His | Cys | Pro | |
| 1895 | | | | | 1900 | | | | 1905 | | | | | 1910 | | |
| ctg | ggc | ggc | acc | ctc | gat | ggg | gtc | tac | cct | acc | ctc | atg | gag | ccc | gtc | 5934 |
| Leu | Gly | Gly | Thr | Leu | Asp | Gly | Val | Tyr | Pro | Thr | Leu | Met | Glu | Pro | Val | |
| | | | | 1915 | | | | 1920 | | | | | 1925 | | | |
| ttg | ctg | ccc | aag | gag | gcc | ccc | cgg | gtc | gcc | cgg | cca | gag | cgg | ccc | cga | 5982 |
| Leu | Leu | Pro | Lys | Glu | Ala | Pro | Arg | Val | Ala | Arg | Pro | Glu | Arg | Pro | Arg | |
| | | 1930 | | | | | | 1935 | | | | 1940 | | | | |
| gca | gac | acc | ggc | cat | gcc | ttc | ctc | gcc | aag | ccc | cca | gcc | cgc | tcc | ggg | 6030 |
| Ala | Asp | Thr | Gly | His | Ala | Phe | Leu | Ala | Lys | Pro | Pro | Ala | Arg | Ser | Gly | |
| | 1945 | | | | | 1950 | | | | 1955 | | | | | | |
| ctg | gag | ccc | gcc | tcc | tcc | ccc | agc | aag | ggc | tcg | gag | ccc | cgg | ccc | cta | 6078 |
| Leu | Glu | Pro | Ala | Ser | Ser | Pro | Ser | Lys | Gly | Ser | Glu | Pro | Arg | Pro | Leu | |
| | 1960 | | | | | 1965 | | | | 1970 | | | | | | |
| gtg | cct | cct | gtc | tct | ggc | cac | gcc | acc | atc | gcc | cgc | acc | cct | gcg | aag | 6126 |
| Val | Pro | Pro | Val | Ser | Gly | His | Ala | Thr | Ile | Ala | Arg | Thr | Pro | Ala | Lys | |
| 1975 | | | | | 1980 | | | | 1985 | | | | | 1990 | | |
| aac | ctc | gca | cct | cac | cac | gcc | agc | ccg | gac | ccg | ccg | gcg | cca | cct | gcc | 6174 |
| Asn | Leu | Ala | Pro | His | His | Ala | Ser | Pro | Asp | Pro | Pro | Ala | Pro | Pro | Ala | |
| | | | 1995 | | | | | 2000 | | | | 2005 | | | | |
| tcg | gcc | tcg | gac | ccg | cac | cgg | gaa | aag | act | caa | agt | aaa | ccc | ttt | tcc | 6222 |
| Ser | Ala | Ser | Asp | Pro | His | Arg | Glu | Lys | Thr | Gln | Ser | Lys | Pro | Phe | | |

| | |
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| acc cac gac aag ggg ctc ccc aag cac ctg gaa gag ctc gac aag agc Thr His Asp Lys Gly Leu Pro Lys His Leu Glu Glu Leu Asp Lys Ser 2055 2060 2065 2070 | 6366 |
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| | | | | |
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| Asn Ile Ser Gln Pro Gly Thr Glu Ile Phe Asn Met Pro Ala Ile Thr | | | | |
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| gga aca ggc ctt atg acc tat aga agc cag gcg gtg cag gaa cat gcc | 7134 | | | |
| Gly Thr Gly Leu Met Thr Tyr Arg Ser Gln Ala Val Gln Glu His Ala | | | | |
| 2315 | 2320 | 2325 | | |
| agc acc aac atg ggg ctg gag gcc ata att aga aag gca ctc atg ggt | 7182 | | | |
| Ser Thr Asn Met Gly Leu Glu Ala Ile Ile Arg Lys Ala Leu Met Gly | | | | |
| 2330 | 2335 | 2340 | | |
| aaa tat gac cag tgg gaa gag tcc ccg ccg ctc agc gcc aat gct ttt | 7230 | | | |
| Lys Tyr Asp Gln Trp Glu Glu Ser Pro Pro Leu Ser Ala Asn Ala Phe | | | | |
| 2345 | 2350 | 2355 | | |
| aac cct ctg aat gcc agt gcc agc ctg ccc gct gct atg ccc ata acc | 7278 | | | |
| Asn Pro Leu Asn Ala Ser Ala Ser Leu Pro Ala Ala Met Pro Ile Thr | | | | |
| 2360 | 2365 | 2370 | | |
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| Ala Ala Asp Gly Arg Ser Asp His Thr Leu Thr Ser Pro Gly Gly Gly | | | | |
| 2375 | 2380 | 2385 | 2390 | |
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| Gly Lys Ala Lys Val Ser Gly Arg Pro Ser Ser Arg Lys Ala Lys Ser | | | | |
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| Pro Ala Pro Gly Leu Ala Ser Gly Asp Arg Pro Pro Ser Val Ser Ser | | | | |
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| Val His Ser Glu Gly Asp Cys Asn Arg Arg Thr Pro Leu Thr Asn Arg | | | | |
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| Asn Pro Leu Ile Met Arg Leu Gln Ala Gly Val Met Ala Ser Pro Pro | | | | |
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| 2505 | | | | |
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35 40 45
Tyr Ala Ser His Leu Ser Pro Gly Ser Ile Ile Gln Pro Gln Arg Arg
50 55 60
Arg Pro Ser Leu Leu Ser Glu Phe Gln Pro Gly Asn Glu Arg Ser Gln
65 70 75 80
Glu Leu His Leu Arg Pro Glu Ser His Ser Tyr Leu Pro Glu Leu Gly
85 90 95
Lys Ser Glu Met Glu Phe Ile Glu Ser Lys Arg Pro Arg Leu Glu Leu
100 105 110
Leu Pro Asp Pro Leu Leu Arg Pro Ser Pro Leu Leu Ala Thr Gly Gln
115 120 125
Pro Ala Gly Ser Glu Asp Leu Thr Lys Asp Arg Ser Leu Thr Gly Lys
130 135 140

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|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu 145 | Glu | Pro | Val | Ser | Pro | Pro | Ser | Pro | Pro | His | Thr | Asp | Pro | Glu | Leu |
| | | | | | 150 | | | | | 155 | | | | | 160 |
| Glu | Leu | Val | Pro | Pro | Arg | Leu | Ser | Lys | Glu | Glu | Leu | Ile | Gln | Asn | Met |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Asp | Arg | Val | Asp | Arg | Glu | Ile | Thr | Met | Val | Glu | Gln | Gln | Ile | Ser | Lys |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Leu | Lys | Lys | Lys | Gln | Gln | Gln | Leu | Glu | Glu | Glu | Ala | Ala | Lys | Pro | Pro |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Glu | Pro | Glu | Lys | Pro | Val | Ser | Pro | Pro | Pro | Ile | Glu | Ser | Lys | His | Arg |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Ser | Leu | Val | Gln | Ile | Ile | Tyr | Asp | Glu | Asn | Arg | Lys | Lys | Ala | Glu | Ala |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Ala | His | Arg | Ile | Leu | Glu | Gly | Leu | Gly | Pro | Gln | Val | Glu | Leu | Pro | Leu |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Tyr | Asn | Gln | Pro | Ser | Asp | Thr | Arg | Gln | Tyr | His | Glu | Asn | Ile | Lys | Ile |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Asn | Gln | Ala | Met | Arg | Lys | Lys | Leu | Ile | Leu | Tyr | Phe | Lys | Arg | Arg | Asn |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| His | Ala | Arg | Lys | Gln | Trp | Glu | Gln | Lys | Phe | Cys | Gln | Arg | Tyr | Asp | Gln |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Leu | Met | Glu | Ala | Trp | Glu | Lys | Lys | Val | Glu | Arg | Ile | Glu | Asn | Asn | Pro |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Arg | Arg | Arg | Ala | Lys | Glu | Ser | Lys | Val | Arg | Glu | Tyr | Tyr | Glu | Lys | Gln |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Phe | Pro | Glu | Ile | Arg | Lys | Gln | Arg | Glu | Leu | Gln | Glu | Arg | Met | Gln | Arg |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Val | Gly | Gln | Arg | Gly | Ser | Gly | Leu | Ser | Met | Ser | Pro | Ala | Arg | Ser | Glu |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| His | Glu | Val | Ser | Glu | Ile | Ile | Asp | Gly | Leu | Ser | Glu | Gln | Glu | Asn | Leu |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Glu | Lys | Gln | Met | Arg | Gln | Leu | Ala | Val | Ile | Pro | Pro | Met | Leu | Tyr | Asp |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Ala | Asp | Gln | Gln | Arg | Ile | Lys | Phe | Ile | Asn | Met | Asn | Gly | Leu | Met | Ala |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Asp | Pro | Met | Lys | Val | Tyr | Lys | Asp | Arg | Gln | Val | Met | Asn | Met | Trp | Ser |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Glu | Gln | Glu | Lys | Glu | Thr | Phe | Arg | Glu | Lys | Phe | Met | Gln | His | Pro | Lys |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Asn | Phe | Gly | Leu | Ile | Ala | Ser | Phe | Leu | Glu | Arg | Lys | Thr | Val | Ala | Glu |
| | 450 | | | | | 455 | | | | | 460 | | | | |

| | | | | | | | | | | | | | | | | |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-----|
| Cys 465 | Val | Leu | Tyr | Tyr | Tyr | Leu | Thr | Lys | Lys | Asn | Glu | Asn | Tyr | Lys | Ser | 480 |
| Leu | Val | Arg | Arg | Ser 485 | Tyr | Arg | Arg | Arg | Gly 490 | Lys | Ser | Gln | Gln | Gln | Gln | 495 |
| Gln | Gln | Gln | Gln | Gln | Gln | Gln | Gln | Gln | Gln | Gln | Gln | Gln | Pro 510 | Met | Pro | |
| Arg | Ser | Ser 515 | Gln | Glu | Glu | Lys | Asp 520 | Glu | Lys | Glu | Lys | Glu | Lys | Glu | Ala | |
| Glu | Lys 530 | Glu | Glu | Glu | Lys | Pro 535 | Glu | Val | Glu | Asn | Asp 540 | Lys | Glu | Asp | Leu | |
| Leu 545 | Lys | Glu | Lys | Thr | Asp 550 | Asp | Thr | Ser | Gly | Glu 555 | Asp | Asn | Asp | Glu | Lys 560 | |
| Glu | Ala | Val | Ala | Ser 565 | Lys | Gly | Arg | Lys | Thr | Ala | Asn | Ser | Gln | Gly 575 | Arg | |
| Arg | Lys | Gly | Arg 580 | Ile | Thr | Arg | Ser | Met 585 | Ala | Asn | Glu | Ala | Asn | Ser | Glu | |
| Glu | Ala | Ile 595 | Thr | Pro | Gln | Gln | Ser 600 | Ala | Glu | Leu | Ala | Ser 605 | Met | Glu | Leu | |
| Asn | Glu 610 | Ser | Ser | Arg | Trp | Thr 615 | Glu | Glu | Glu | Met | Glu 620 | Thr | Ala | Lys | Lys | |
| Gly 625 | Leu | Leu | Glu | His | Gly 630 | Arg | Asn | Trp | Ser | Ala 635 | Ile | Ala | Arg | Met | Val 640 | |
| Gly | Ser | Lys | Thr 645 | Val | Ser | Gln | Cys | Lys | Asn 650 | Phe | Tyr | Phe | Asn | Tyr 655 | Lys | |
| Lys | Arg | Gln | Asn 660 | Leu | Asp | Glu | Ile | Leu 665 | Gln | Gln | His | Lys | Leu 670 | Lys | Met | |
| Glu | Lys | Glu 675 | Arg | Asn | Ala | Arg | Arg 680 | Lys | Lys | Lys | Lys | Ala 685 | Pro | Ala | Ala | |
| Ala | Ser 690 | Glu | Glu | Ala | Ala | Phe 695 | Pro | Pro | Val | Val | Glu 700 | Asp | Glu | Glu | Met | |
| Glu 705 | Ala | Ser | Gly | Val | Thr 710 | Gly | Asn | Glu | Glu | Glu 715 | Met | Val | Glu | Glu | Ala 720 | |
| Glu | Ala | Thr | Val 725 | Asn | Asn | Ser | Ser | Asp | Thr 730 | Glu | Ser | Ile | Pro | Ser 735 | Pro | |
| His | Thr | Glu | Ala 740 | Ala | Lys | Asp | Thr | Gly 745 | Gln | Asn | Gly | Pro | Lys 750 | Pro | Pro | |
| Ala | Thr | Leu 755 | Gly | Ala | Asp | Gly | Pro 760 | Pro | Pro | Gly | Pro | Pro 765 | Thr | Pro | Pro | |
| Pro | Glu 770 | Asp | Ile | Pro | Ala | Pro 775 | Thr | Glu | Ser | Thr | Pro 780 | Ala | Ser | Glu | Ala | |
| Thr | Leu | Ala | Pro | Thr | Pro | Pro | Pro | Ala | Pro | Pro | Phe | Pro | Ser | Ser | Pro | |

| 785 | | | | | 790 | | | | | 795 | | | | | 800 |
|------|------|------|------|-----|------|------|------|------|------|------|------|------|------|------|-----|
| Pro | Pro | Val | Val | Pro | Lys | Glu | Glu | Lys | Glu | Glu | Glu | Thr | Ala | Ala | Ala |
| | | | | 805 | | | | | 810 | | | | | 815 | |
| Pro | Pro | Val | Glu | Glu | Gly | Glu | Glu | Gln | Lys | Pro | Pro | Ala | Ala | Glu | Glu |
| | | | 820 | | | | | 825 | | | | | 830 | | |
| Leu | Ala | Val | Asp | Thr | Gly | Lys | Ala | Glu | Glu | Pro | Val | Lys | Ser | Glu | Cys |
| | | 835 | | | | | 840 | | | | | 845 | | | |
| Thr | Glu | Glu | Ala | Glu | Glu | Gly | Pro | Ala | Lys | Gly | Lys | Asp | Ala | Glu | Ala |
| | 850 | | | | | 855 | | | | | 860 | | | | |
| Ala | Glu | Ala | Thr | Ala | Glu | Arg | Ala | Leu | Lys | Ala | Glu | Lys | Lys | Glu | Gly |
| 865 | | | | | 870 | | | | | 875 | | | | | 880 |
| Gly | Ser | Gly | Arg | Ala | Thr | Thr | Ala | Lys | Ser | Ser | Gly | Ala | Pro | Gln | Asp |
| | | | | 885 | | | | | 890 | | | | | 895 | |
| Ser | Asp | Ser | Ser | Ala | Thr | Cys | Ser | Ala | Asp | Glu | Val | Asp | Glu | Ala | Glu |
| | | | 900 | | | | | 905 | | | | | 910 | | |
| Gly | Gly | Asp | Lys | Asn | Arg | Leu | Leu | Ser | Pro | Arg | Pro | Ser | Leu | Leu | Thr |
| | | 915 | | | | | 920 | | | | | 925 | | | |
| Pro | Thr | Gly | Asp | Pro | Arg | Ala | Asn | Ala | Ser | Pro | Gln | Lys | Pro | Leu | Asp |
| | 930 | | | | | 935 | | | | | 940 | | | | |
| Leu | Lys | Gln | Leu | Lys | Gln | Arg | Ala | Ala | Ala | Ile | Pro | Pro | Ile | Gln | Val |
| 945 | | | | | 950 | | | | | 955 | | | | | 960 |
| Thr | Lys | Val | His | Glu | Pro | Pro | Arg | Glu | Asp | Ala | Ala | Pro | Thr | Lys | Pro |
| | | | | 965 | | | | | 970 | | | | | 975 | |
| Ala | Pro | Pro | Ala | Pro | Pro | Pro | Pro | Gln | Asn | Leu | Gln | Pro | Glu | Ser | Asp |
| | | | 980 | | | | | 985 | | | | | 990 | | |
| Ala | Pro | Gln | Gln | Pro | Gly | Ser | Ser | Pro | Arg | Gly | Lys | Ser | Arg | Ser | Pro |
| | | 995 | | | | | 1000 | | | | | 1005 | | | |
| Ala | Pro | Pro | Ala | Asp | Lys | Glu | Ala | Glu | Lys | Pro | Val | Phe | Phe | Pro | Ala |
| 1010 | | | | | | 1015 | | | | | 1020 | | | | |
| Phe | Ala | Ala | Glu | Ala | Gln | Lys | Leu | Pro | Gly | Asp | Pro | Pro | Cys | Trp | Thr |
| 025 | | | | | 1030 | | | | 1035 | | | | | 1040 | |
| Ser | Gly | Leu | Pro | Phe | Pro | Val | Pro | Pro | Arg | Glu | Val | Ile | Lys | Ala | Ser |
| | | | 1045 | | | | | 1050 | | | | | 1055 | | |
| Pro | His | Ala | Pro | Asp | Pro | Ser | Ala | Phe | Ser | Tyr | Ala | Pro | Pro | Gly | His |
| | | 1060 | | | | | | 1065 | | | | | 1070 | | |
| Pro | Leu | Pro | Leu | Gly | Leu | His | Asp | Thr | Ala | Arg | Pro | Val | Leu | Pro | Arg |
| | 1075 | | | | | 1080 | | | | | | 1085 | | | |
| Pro | Pro | Thr | Ile | Ser | Asn | Pro | Pro | Pro | Leu | Ile | Ser | Ser | Ala | Lys | His |
| 1090 | | | | | | 1095 | | | | 1100 | | | | | |
| Pro | Ser | Val | Leu | Glu | Arg | Gln | Ile | Gly | Ala | Ile | Ser | Gln | Gly | Met | Ser |
| 105 | | | | | 1110 | | | | | 1115 | | | | 1120 | |

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His Thr Pro Glu Leu Pro Leu Ala Pro Arg Pro Leu Lys Glu Gly Ser
425 1430 1435 1440

Arg His Ser Ser Ser Pro Leu Ser Pro Gly Gly Pro Thr His Leu Thr

| 1765 | | | | | | | | | | 1770 | | | | 1775 | | | |
|------|-----|------|------|-----|------|-----|------|------|-----|------|------|------|------|------|------|--|--|
| Lys | Pro | Thr | Thr | Thr | Ser | Ser | Ser | Glu | Arg | Glu | Arg | Asp | Arg | Asp | Arg | | |
| | | | 1780 | | | | | 1785 | | | | | 1790 | | | | |
| Glu | Arg | Asp | Arg | Asp | Arg | Glu | Arg | Glu | Lys | Ser | Ile | Leu | Thr | Ser | Thr | | |
| | | 1795 | | | | | 1800 | | | | | 1805 | | | | | |
| Thr | Thr | Val | Glu | His | Ala | Pro | Ile | Trp | Arg | Pro | Gly | Thr | Glu | Gln | Ser | | |
| | | 1810 | | | | | 1815 | | | | 1820 | | | | | | |
| Ser | Gly | Ser | Ser | Gly | Ser | Ser | Gly | Gly | Gly | Gly | Gly | Ser | Ser | Ser | Arg | | |
| 825 | | | | | 1830 | | | | | 1835 | | | | | 1840 | | |
| Pro | Ala | Ser | His | Ser | His | Ala | His | Gln | His | Ser | Pro | Ile | Ser | Pro | Arg | | |
| | | | 1845 | | | | | 1850 | | | | | | 1855 | | | |
| Thr | Gln | Asp | Ala | Leu | Gln | Gln | Arg | Pro | Ser | Val | Leu | His | Asn | Thr | Gly | | |
| | | 1860 | | | | | | 1865 | | | | 1870 | | | | | |
| Met | Lys | Gly | Ile | Ile | Thr | Ala | Val | Glu | Pro | Ser | Lys | Pro | Thr | Val | Leu | | |
| | | 1875 | | | | | 1880 | | | | 1885 | | | | | | |
| Arg | Ser | Thr | Ser | Thr | Ser | Ser | Pro | Val | Arg | Pro | Ala | Ala | Thr | Phe | Pro | | |
| | | 1890 | | | | | 1895 | | | | 1900 | | | | | | |
| Pro | Ala | Thr | His | Cys | Pro | Leu | Gly | Gly | Thr | Leu | Asp | Gly | Val | Tyr | Pro | | |
| 905 | | | | | 1910 | | | | | 1915 | | | | | 1920 | | |
| Thr | Leu | Met | Glu | Pro | Val | Leu | Leu | Pro | Lys | Glu | Ala | Pro | Arg | Val | Ala | | |
| | | | 1925 | | | | | 1930 | | | | | | 1935 | | | |
| Arg | Pro | Glu | Arg | Pro | Arg | Ala | Asp | Thr | Gly | His | Ala | Phe | Leu | Ala | Lys | | |
| | | 1940 | | | | | | 1945 | | | | | 1950 | | | | |
| Pro | Pro | Ala | Arg | Ser | Gly | Leu | Glu | Pro | Ala | Ser | Ser | Pro | Ser | Lys | Gly | | |
| | | 1955 | | | | | 1960 | | | | | 1965 | | | | | |
| Ser | Glu | Pro | Arg | Pro | Leu | Val | Pro | Pro | Val | Ser | Gly | His | Ala | Thr | Ile | | |
| | | 1970 | | | | | 1975 | | | | 1980 | | | | | | |
| Ala | Arg | Thr | Pro | Ala | Lys | Asn | Leu | Ala | Pro | His | His | Ala | Ser | Pro | Asp | | |
| 985 | | | | | 1990 | | | | | 1995 | | | | | 2000 | | |
| Pro | Pro | Ala | Pro | Pro | Ala | Ser | Ala | Ser | Asp | Pro | His | Arg | Glu | Lys | Thr | | |
| | | | 2005 | | | | | 2010 | | | | | | 2015 | | | |
| Gln | Ser | Lys | Pro | Phe | Ser | Ile | Gln | Glu | Leu | Glu | Leu | Arg | Ser | Leu | Gly | | |
| | | 2020 | | | | | | 2025 | | | | 2030 | | | | | |
| Tyr | His | Gly | Ser | Ser | Tyr | Ser | Pro | Glu | Gly | Val | Glu | Pro | Val | Ser | Pro | | |
| | | 2035 | | | | | 2040 | | | | 2045 | | | | | | |
| Val | Ser | Ser | Pro | Ser | Leu | Thr | His | Asp | Lys | Gly | Leu | Pro | Lys | His | Leu | | |
| | | 2050 | | | | | 2055 | | | | 2060 | | | | | | |
| Glu | Glu | Leu | Asp | Lys | Ser | His | Leu | Glu | Gly | Glu | Leu | Arg | Pro | Lys | Gln | | |
| 065 | | | | | 2070 | | | | | 2075 | | | | | 2080 | | |
| Pro | Gly | Pro | Val | Lys | Leu | Gly | Gly | Glu | Ala | Ala | His | Leu | Pro | His | Leu | | |
| | | | 2085 | | | | | 2090 | | | | | | 2095 | | | |

Arg Pro Leu Pro Glu Ser Gln Pro Ser Ser Ser Pro Leu Leu Gln Thr
2100 2105 2110

Ala Pro Gly Val Lys Gly His Gln Arg Val Val Thr Leu Ala Gln His
2115 2120 2125

Ile Ser Glu Val Ile Thr Gln Asp Tyr Thr Arg His His Pro Gln Gln
2130 2135 2140

Leu Ser Ala Pro Leu Pro Ala Pro Leu Tyr Ser Phe Pro Gly Ala Ser
145 2150 2155 2160

Cys Pro Val Leu Asp Leu Arg Arg Pro Pro Ser Asp Leu Tyr Leu Pro
2165 2170 2175

Pro Pro Asp His Gly Ala Pro Ala Arg Gly Ser Pro His Ser Glu Gly
2180 2185 2190

Gly Lys Arg Ser Pro Glu Pro Asn Lys Thr Ser Val Leu Gly Gly Gly
2195 2200 2205

Glu Asp Gly Ile Glu Pro Val Ser Pro Pro Glu Gly Met Thr Glu Pro
2210 2215 2220

Gly His Ser Arg Ser Ala Val Tyr Pro Leu Leu Tyr Arg Asp Gly Glu
225 2230 2235 2240

Gln Thr Glu Pro Ser Arg Met Gly Ser Lys Ser Pro Gly Asn Thr Ser
2245 2250 2255

Gln Pro Pro Ala Phe Phe Ser Lys Leu Thr Glu Ser Asn Ser Ala Met
2260 2265 2270

Val Lys Ser Lys Lys Gln Glu Ile Asn Lys Lys Leu Asn Thr His Asn
2275 2280 2285

Arg Asn Glu Pro Glu Tyr Asn Ile Ser Gln Pro Gly Thr Glu Ile Phe
2290 2295 2300

Asn Met Pro Ala Ile Thr Gly Thr Gly Leu Met Thr Tyr Arg Ser Gln
305 2310 2315 2320

Ala Val Gln Glu His Ala Ser Thr Asn Met Gly Leu Glu Ala Ile Ile
2325 2330 2335

Arg Lys Ala Leu Met Gly Lys Tyr Asp Gln Trp Glu Glu Ser Pro Pro
2340 2345 2350

Leu Ser Ala Asn Ala Phe Asn Pro Leu Asn Ala Ser Ala Ser Leu Pro
2355 2360 2365

Ala Ala Met Pro Ile Thr Ala Ala Asp Gly Arg Ser Asp His Thr Leu
2370 2375 2380

Thr Ser Pro Gly Gly Gly Gly Lys Ala Lys Val Ser Gly Arg Pro Ser
385 2390 2395 2400

Ser Arg Lys Ala Lys Ser Pro Ala Pro Gly Leu Ala Ser Gly Asp Arg
2405 2410 2415

| | | | | | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 3 | | | | | | | | | | | | | | | | |
| atg | tcg | ggc | tcc | aca | cag | cct | gtg | gca | cag | acg | tgg | agg | gcc | act | gag | 48 |
| Met | Ser | Gly | Ser | Thr | Gln | Pro | Val | Ala | Gln | Thr | Trp | Arg | Ala | Thr | Glu | |
| 1 | | | | 5 | | | | 10 | | | | 15 | | | | |
| ccc | cgc | tac | ccg | ccc | cac | agc | ctt | tcc | tac | cca | gtg | cag | atc | gcc | cgg | 96 |
| Pro | Arg | Tyr | Pro | Pro | His | Ser | Leu | Ser | Tyr | Pro | Val | Gln | Ile | Ala | Arg | |
| 20 | | | | 25 | | | | 30 | | | | | | | | |
| acg | cac | acg | gac | gtc | ggg | ctc | ctg | gag | tac | cag | cac | cac | tcc | cgc | gac | 144 |
| Thr | His | Thr | Asp | Val | Gly | Leu | Leu | Glu | Tyr | Gln | His | His | Ser | Arg | Asp | |
| 35 | | | | 40 | | | | 45 | | | | | | | | |
| tat | gcc | tcc | cac | ctg | tcg | ccc | ggc | tcc | atc | atc | cag | ccc | cag | cgg | cgg | 192 |
| Tyr | Ala | Ser | His | Leu | Ser | Pro | Gly | Ser | Ile | Ile | Gln | Pro | Gln | Arg | Arg | |
| 50 | | | | 55 | | | | 60 | | | | | | | | |
| agg | ccc | tcc | ctg | ctg | tct | gag | ttc | cag | ccc | ggg | aat | gaa | cgg | tcc | cag | 240 |
| Arg | Pro | Ser | Leu | Leu | Ser | Glu | Phe | Gln | Pro | Gly | Asn | Glu | Arg | Ser | Gln | |
| 65 | | | | 70 | | | | 75 | | | | 80 | | | | |
| gag | ctc | cac | ctg | cgg | cca | gag | tcc | cac | tca | tac | ctg | ccc | gag | ctg | ggg | 288 |
| Glu | Leu | His | Leu | Arg | Pro | Glu | Ser | His | Ser | Tyr | Leu | Pro | Glu | Leu | Gly | |
| 85 | | | | 90 | | | | 95 | | | | | | | | |
| aag | tca | gag | atg | gag | ttc | att | gaa | agc | aag | cgc | cct | cgg | cta | gag | ctg | 336 |
| Lys | Ser | Glu | Met | Glu | Phe | Ile | Glu | Ser | Lys | Arg | Pro | Arg | Leu | Glu | Leu | |
| 100 | | | | 105 | | | | 110 | | | | | | | | |
| ctg | cct | gac | ccc | ctg | ctg | cga | ccg | tca | ccc | ctg | ctg | gcc | acg | ggc | cag | 384 |
| Leu | Pro | Asp | Pro | Leu | Leu | Arg | Pro | Ser | Pro | Leu | Leu | Ala | Thr | Gly | Gln | |
| 115 | | | | 120 | | | | 125 | | | | | | | | |

| | |
|---|------|
| cct gcg gga tct gaa gac ctc acc aag gac cgt agc ctg acg ggc aag | 432 |
| Pro Ala Gly Ser Glu Asp Leu Thr Lys Asp Arg Ser Leu Thr Gly Lys | |
| 130 135 140 | |
| ctg gaa ccg gtg tct ccc ccc agc ccc ccg cac act gac cct gag ctg | 480 |
| Leu Glu Pro Val Ser Pro Pro Ser Pro Pro His Thr Asp Pro Glu Leu | |
| 145 150 155 160 | |
| gag ctg gtg ccg cca cgg ctg tcc aag gag gag ctg atc cag aac atg | 528 |
| Glu Leu Val Pro Pro Arg Leu Ser Lys Glu Glu Leu Ile Gln Asn Met | |
| 165 170 175 | |
| gac cgc gtg gac cga gag atc acc atg gta gag cag cag atc tct aag | 576 |
| Asp Arg Val Asp Arg Glu Ile Thr Met Val Glu Gln Gln Ile Ser Lys | |
| 180 185 190 | |
| ctg aag aag aag cag caa cag ctg gag gag gag gct gcc aag ccg ccc | 624 |
| Leu Lys Lys Lys Gln Gln Gln Leu Glu Glu Glu Ala Ala Lys Pro Pro | |
| 195 200 205 | |
| gag cct gag aag ccc gtg tca ccg ccg ccc atc gag tcg aag cac cgc | 672 |
| Glu Pro Glu Lys Pro Val Ser Pro Pro Pro Ile Glu Ser Lys His Arg | |
| 210 215 220 | |
| agc ctg gtg cag atc atc tac gac gag aac cgg aag aag gct gaa gct | 720 |
| Ser Leu Val Gln Ile Ile Tyr Asp Glu Asn Arg Lys Lys Ala Glu Ala | |
| 225 230 235 240 | |
| gca cat cgg att ctg gaa ggc ctg ggg ccc cag gtg gag ctg ccg ctg | 768 |
| Ala His Arg Ile Leu Glu Gly Leu Gly Pro Gln Val Glu Leu Pro Leu | |
| 245 250 255 | |
| tac aac cag ccc tcc gac acc cgg cag tat cat gag aac atc aaa ata | 816 |
| Tyr Asn Gln Pro Ser Asp Thr Arg Gln Tyr His Glu Asn Ile Lys Ile | |
| 260 265 270 | |
| aac cag gcg atg cgg aag aag cta atc ttg tac ttc aag agg agg aat | 864 |
| Asn Gln Ala Met Arg Lys Lys Leu Ile Leu Tyr Phe Lys Arg Arg Asn | |
| 275 280 285 | |
| cac gct cgg aaa caa tgg gag cag aag ttc tgc cag cgc tat gac cag | 912 |
| His Ala Arg Lys Gln Trp Glu Gln Lys Phe Cys Gln Arg Tyr Asp Gln | |
| 290 295 300 | |
| ctc atg gag gcc tgg gag aag aag gtg gag cgc atc gag aac aac ccc | 960 |
| Leu Met Glu Ala Trp Glu Lys Lys Val Glu Arg Ile Glu Asn Asn Pro | |
| 305 310 315 320 | |
| cgg cgg cgg gcc aag gag agc aag gtt cgc gag tac tac gag aag cag | 1008 |
| Arg Arg Arg Ala Lys Glu Ser Lys Val Arg Glu Tyr Tyr Glu Lys Gln | |
| 325 330 335 | |
| ttc cct gag atc cgc aag cag cgc gag ctg cag gag cgc atg cag agg | 1056 |
| Phe Pro Glu Ile Arg Lys Gln Arg Glu Leu Gln Glu Arg Met Gln Arg | |
| 340 345 350 | |
| gtg ggc cag cgg ggc agt ggg ctg tcc atg tcg ccc gcc cgc agc gag | 1104 |
| Val Gly Gln Arg Gly Ser Gly Leu Ser Met Ser Pro Ala Arg Ser Glu | |
| 355 360 365 | |
| cac gag gtg tca gag atc atc gat ggc ctc tca gag cag gag aac ctg | 1152 |

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| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| His | Glu | Val | Ser | Glu | Ile | Ile | Asp | Gly | Leu | Ser | Glu | Gln | Glu | Asn | Leu | |
| 370 | | | | | 375 | | | | | | 380 | | | | | |
| gag | aag | cag | atg | cgc | cag | ctg | gcc | gtg | atc | ccg | ccc | atg | ctg | tac | gac | 1200 |
| Glu | Lys | Gln | Met | Arg | Gln | Leu | Ala | Val | Ile | Pro | Pro | Met | Leu | Tyr | Asp | |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 | |
| gct | gac | cag | cag | cgc | atc | aag | ttc | atc | aac | atg | aac | ggg | ctt | atg | gcc | 1248 |
| Ala | Asp | Gln | Gln | Arg | Ile | Lys | Phe | Ile | Asn | Met | Asn | Gly | Leu | Met | Ala | |
| | | | | 405 | | | | | 410 | | | | | 415 | | |
| gac | ccc | atg | aag | gtg | tac | aaa | gac | cgc | cag | gtc | atg | aac | atg | tgg | agt | 1296 |
| Asp | Pro | Met | Lys | Val | Tyr | Lys | Asp | Arg | Gln | Val | Met | Asn | Met | Trp | Ser | |
| | | | 420 | | | | | 425 | | | | | 430 | | | |
| gag | cag | gag | aag | gag | acc | ttc | cgg | gag | aag | ttc | atg | cag | cat | ccc | aag | 1344 |
| Glu | Gln | Glu | Lys | Glu | Thr | Phe | Arg | Glu | Lys | Phe | Met | Gln | His | Pro | Lys | |
| | | | 435 | | | | 440 | | | | | 445 | | | | |
| aac | ttt | ggc | ctg | atc | gca | tca | ttc | ctg | gag | agg | aag | aca | gtg | gct | gag | 1392 |
| Asn | Phe | Gly | Leu | Ile | Ala | Ser | Phe | Leu | Glu | Arg | Lys | Thr | Val | Ala | Glu | |
| | 450 | | | | | 455 | | | | | 460 | | | | | |
| tgc | gtc | ctc | tat | tac | tac | ctg | act | aag | aag | aat | gag | aac | tat | aag | agc | 1440 |
| Cys | Val | Leu | Tyr | Tyr | Tyr | Leu | Thr | Lys | Lys | Asn | Glu | Asn | Tyr | Lys | Ser | |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 | |
| ctg | gtg | aga | cgg | agc | tat | cgg | cgc | cgc | ggc | aag | agc | cag | cag | caa | caa | 1488 |
| Leu | Val | Arg | Arg | Ser | Tyr | Arg | Arg | Arg | Gly | Lys | Ser | Gln | Gln | Gln | Gln | |
| | | | | 485 | | | | | 490 | | | | | 495 | | |
| cag | cag | cag | cag | cag | cag | cag | cag | cag | cag | cag | cag | cag | ccc | atg | ccc | 1536 |
| Gln | Gln | Gln | Gln | Gln | Gln | Gln | Gln | Gln | Gln | Gln | Gln | Gln | Pro | Met | Pro | |
| | | | | 500 | | | | 505 | | | | | 510 | | | |
| cgc | agc | agc | cag | gag | gag | aaa | gat | gag | aag | gag | aag | gaa | aag | gag | gcg | 1584 |
| Arg | Ser | Ser | Gln | Glu | Glu | Lys | Asp | Glu | Lys | Glu | Lys | Glu | Lys | Glu | Ala | |
| | | 515 | | | | | 520 | | | | | 525 | | | | |
| gag | aag | gag | gag | gag | aag | ccg | gag | gtg | gag | aac | gac | aag | gaa | gac | ctc | 1632 |
| Glu | Lys | Glu | Glu | Glu | Lys | Pro | Glu | Val | Glu | Asn | Asp | Lys | Glu | Asp | Leu | |
| | 530 | | | | | 535 | | | | | 540 | | | | | |
| ctc | aag | gag | aag | aca | gac | gac | acc | tca | ggg | gag | gac | aac | gac | gag | aag | 1680 |
| Leu | Lys | Glu | Lys | Thr | Asp | Asp | Thr | Ser | Gly | Glu | Asp | Asn | Asp | Glu | Lys | |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 | |
| gag | gct | gtg | gcc | tcc | aaa | ggc | cgc | aaa | act | gcc | aac | agc | cag | gga | aga | 1728 |
| Glu | Ala | Val | Ala | Ser | Lys | Gly | Arg | Lys | Thr | Ala | Asn | Ser | Gln | Gly | Arg | |
| | | | | 565 | | | | | 570 | | | | | 575 | | |
| cgc | aaa | ggc | cgc | atc | acc | cgc | tca | atg | gct | aat | gag | gcc | aac | agc | gag | 1776 |
| Arg | Lys | Gly | Arg | Ile | Thr | Arg | Ser | Met | Ala | Asn | Glu | Ala | Asn | Ser | Glu | |
| | | | 580 | | | | 585 | | | | | | 590 | | | |
| gag | gcc | atc | acc | ccc | cag | cag | agc | gcc | gag | ctg | gcc | tcc | atg | gag | ctg | 1824 |
| Glu | Ala | Ile | Thr | Pro | Gln | Gln | Ser | Ala | Glu | Leu | Ala | Ser | Met | Glu | Leu | |
| | | 595 | | | | | 600 | | | | | 605 | | | | |
| aat | gag | agt | tct | cgc | tgg | aca | gaa | gaa | gaa | atg | gaa | aca | gcc | aag | aaa | 1872 |
| Asn | Glu | Ser | Ser | Arg | Trp | Thr | Glu | Glu | Glu | Met | Glu | Thr | Ala | Lys | Lys | |

102220 102220

| 610 | 615 | 620 | |
|---|-----|-----|------|
| ggt ctc ctg gaa cac ggc cgc aac tgg tgc gcc atc gcc cgg atg gtg Gly Leu Leu Glu His Gly Arg Asn Trp Ser Ala Ile Ala Arg Met Val 625 630 635 640 | | | 1920 |
| ggc tcc aag act gtg tgc cag tgt aag aac ttc tac ttc aac tac aag Gly Ser Lys Thr Val Ser Gln Cys Lys Asn Phe Tyr Phe Asn Tyr Lys 645 650 655 | | | 1968 |
| aag agg cag aac ctc gat gag atc ttg cag cag cac aag ctg aag atg Lys Arg Gln Asn Leu Asp Glu Ile Leu Gln Gln His Lys Leu Lys Met 660 665 670 | | | 2016 |
| gag aag gag agg aac gcg cgg agg aag aag aag aaa gcg ccg gcg gcg Glu Lys Glu Arg Asn Ala Arg Arg Lys Lys Lys Lys Ala Pro Ala Ala 675 680 685 | | | 2064 |
| gcc agc gag gag gct gca ttc ccg ccc gtg gtg gag gat gag gag atg Ala Ser Glu Glu Ala Ala Phe Pro Pro Val Val Glu Asp Glu Glu Met 690 695 700 | | | 2112 |
| gag gcg tgc ggc gtg acg gga aat gag gag gag atg gtg gag gag gct Glu Ala Ser Gly Val Thr Gly Asn Glu Glu Glu Met Val Glu Glu Ala 705 710 715 720 | | | 2160 |
| gaa gcc act gtc aac aac agc tca gac acc gag agc atc ccc tct cct Glu Ala Thr Val Asn Asn Ser Ser Asp Thr Glu Ser Ile Pro Ser Pro 725 730 735 | | | 2208 |
| cac act gag gcc gcc aag gac aca ggg cag aat ggg ccc aag ccc cca His Thr Glu Ala Ala Lys Asp Thr Gly Gln Asn Gly Pro Lys Pro Pro 740 745 750 | | | 2256 |
| gcc acc ctg ggc gcc gac ggg cca ccc cca ggg cca ccc acc cca cca Ala Thr Leu Gly Ala Asp Gly Pro Pro Pro Gly Pro Pro Thr Pro Pro 755 760 765 | | | 2304 |
| ccg gag gac atc ccg gcc ccc act gag tcc acc ccg gcc tct gaa gcc Pro Glu Asp Ile Pro Ala Pro Thr Glu Ser Thr Pro Ala Ser Glu Ala 770 775 780 | | | 2352 |
| acc tta gcc cct acg ccc cca cca gca ccc cca ttt ccc tct tca cct Thr Leu Ala Pro Thr Pro Pro Pro Ala Pro Pro Phe Pro Ser Ser Pro 785 790 795 800 | | | 2400 |
| cct cct gtg gtc ccc aag gag gag aag gag gag gag acc gca gca gcg Pro Pro Val Val Pro Lys Glu Glu Lys Glu Glu Glu Thr Ala Ala Ala 805 810 815 | | | 2448 |
| ccc cca gtg gag gag ggg gag gag cag aag ccc ccc gcg gct gag gag Pro Pro Val Glu Glu Gly Glu Glu Gln Lys Pro Pro Ala Ala Glu Glu 820 825 830 | | | 2496 |
| ctg gca gtg gac aca ggg aag gcc gag gag ccc gtc aag agc gag tgc Leu Ala Val Asp Thr Gly Lys Ala Glu Glu Pro Val Lys Ser Glu Cys 835 840 845 | | | 2544 |
| acg gag gaa gcc gag gag ggg ccg gcc aag ggc aag gac gcg gag gcc Thr Glu Glu Ala Glu Glu Gly Pro Ala Lys Gly Lys Asp Ala Glu Ala 850 855 860 | | | 2592 |

| | | | | | | | | | | | | | | | | |
|--------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|------|
| gct Ala 865 | gag Glu | gcc Ala | acg Thr | gcc Ala | gag Glu 870 | agg Arg | gcg Ala | ctc Leu | aag Lys | gca Ala 875 | gag Glu | aag Lys | aag Lys | gag Glu | ggc Gly 880 | 2640 |
| ggg Gly | agc Ser | ggc Gly | agg Arg | gcc Ala 885 | acc Thr | aca Thr | gcc Ala | aag Lys | agc Ser 890 | tcg Ser | ggc Gly | gcc Ala | ccc Pro | cag Gln 895 | gac Asp | 2688 |
| agc Ser | gac Asp | tcc Ser | agt Ser 900 | gcc Ala | acc Thr | tgc Cys | agt Ser | gca Ala 905 | gac Asp | gag Glu | gtg Val | gat Asp | gag Glu 910 | gcc Ala | gag Glu | 2736 |
| ggc Gly | ggc Gly | gac Asp 915 | aag Lys | aac Asn | cgg Arg | ctg Leu 920 | ctg Leu | tcc Ser | cca Pro | agg Arg | ccc Pro | agc Ser 925 | ctc Leu | ctc Leu | acc Thr | 2784 |
| ccg Pro | act Thr 930 | ggc Gly | gac Asp | ccc Pro | cgg Arg | gcc Ala 935 | aat Asn | gcc Ala | tca Ser | ccc Pro | cag Gln 940 | aag Lys | cca Pro | ctg Leu | gac Asp | 2832 |
| ctg Leu 945 | aag Lys | cag Gln | ctg Leu | aag Lys | cag Gln 950 | cga Arg | gcg Ala | gct Ala | gcc Ala 955 | atc Ile | ccc Pro | ccc Pro | atc Ile | cag Gln | gtc Val 960 | 2880 |
| acc Thr | aaa Lys | gtc Val | cat His | gag Glu 965 | ccc Pro | ccc Pro | cgg Arg | gag Glu | gac Asp 970 | gca Ala | gct Ala | ccc Pro | acc Thr | aag Lys 975 | cca Pro | 2928 |
| gct Ala | ccc Pro | cca Pro | gcc Ala 980 | cca Pro | ccg Pro | cca Pro | ccg Pro | caa Gln 985 | aac Asn | ctg Leu | cag Gln | ccg Pro | gag Glu 990 | agc Ser | gac Asp | 2976 |
| gcc Ala | cct Pro | cag Gln 995 | cag Gln | cct Pro | ggc Gly | agc Ser | agc Ser | ccc Pro | cgg Arg | ggc Gly | aag Lys | agc Ser | agg Arg | agc Ser | ccg Pro | 3024 |
| gca Ala 1010 | ccc Pro | ccc Pro | gcc Ala | gac Asp | aag Lys | gag Glu | gca Ala | gag Glu | aag Lys | cct Pro | gtg Val | ttc Phe | ttc Phe | cca Pro | gcc Ala | 3072 |
| ttc Phe 1025 | gca Ala | gcc Ala | gag Glu | gcc Ala | cag Gln | aag Lys | ctg Leu | cct Pro | ggg Gly | gac Asp | ccc Pro | cct Pro | tgc Cys | tgg Trp | act Thr 1040 | 3120 |
| tcc Ser | ggc Gly | ctg Leu | ccc Pro | ttc Phe | ccc Pro | gtg Val | ccc Pro | ccc Pro | cgt Arg | gag Glu | gtg Val | atc Ile | aag Lys | gcc Ala | tcc Ser | 3168 |
| ccg Pro | cat His | gcc Ala | ccg Pro | gac Asp | ccc Pro | tca Ser | gcc Ala | ttc Phe | tcc Ser | tac Tyr | gct Ala | cca Pro | cct Pro | ggg Gly | cac His | 3216 |
| cca Pro | ctg Leu | ccc Pro | ctg Leu | ggc Gly | ctc Leu | cat His | gac Asp | act Thr | gcc Ala | cgg Arg | ccc Pro | gtc Val | ctg Leu | ccg Pro | cgc Arg | 3264 |
| cca Pro | ccc Pro | acc Thr | atc Ile | tcc Ser | aac Asn | ccg Pro | cct Pro | ccc Pro | ctc Leu | atc Ile | tcc Ser | tct Ser | gcc Ala | aag Lys | cac His | 3312 |

| | |
|---|------|
| ccc agc gtc ctc gag agg caa ata ggt gcc atc tcc caa gga atg tcg | 3360 |
| Pro Ser Val Leu Glu Arg Gln Ile Gly Ala Ile Ser Gln Gly Met Ser | |
| 1105 1110 1115 1120 | |
| gtc cag ctc cac gtc ccg tac tca gag cat gcc aag gcc ccg gtg ggc | 3408 |
| Val Gln Leu His Val Pro Tyr Ser Glu His Ala Lys Ala Pro Val Gly | |
| 1125 1130 1135 | |
| cct gtc acc atg ggg ctg ccc ctg ccc atg gac ccc aaa aag ctg gca | 3456 |
| Pro Val Thr Met Gly Leu Pro Leu Pro Met Asp Pro Lys Lys Leu Ala | |
| 1140 1145 1150 | |
| ccc ttc agc gga gtg aag cag gag cag ctg tcc cca cgg ggc cag gct | 3504 |
| Pro Phe Ser Gly Val Lys Gln Glu Gln Leu Ser Pro Arg Gly Gln Ala | |
| 1155 1160 1165 | |
| ggg cca ccg gag agc ctg ggg gtg ccc aca gcc cag gag gcg tcc gtg | 3552 |
| Gly Pro Pro Glu Ser Leu Gly Val Pro Thr Ala Gln Glu Ala Ser Val | |
| 1170 1175 1180 | |
| ctg aga ggg aca gct ctg ggc tca gtt ccg ggc gga agc atc acc aaa | 3600 |
| Leu Arg Gly Thr Ala Leu Gly Ser Val Pro Gly Gly Ser Ile Thr Lys | |
| 1185 1190 1195 1200 | |
| ggc att ccc agc aca cgg gtg ccc tcg gac agc gcc atc aca tac cgc | 3648 |
| Gly Ile Pro Ser Thr Arg Val Pro Ser Asp Ser Ala Ile Thr Tyr Arg | |
| 1205 1210 1215 | |
| ggc tcc atc acc cac ggc acg cca gct gac gtc ctg tac aag ggc acc | 3696 |
| Gly Ser Ile Thr His Gly Thr Pro Ala Asp Val Leu Tyr Lys Gly Thr | |
| 1220 1225 1230 | |
| atc acc agg atc atc ggc gag gac agc ccg agt cgc ttg gac cgc ggc | 3744 |
| Ile Thr Arg Ile Ile Gly Glu Asp Ser Pro Ser Arg Leu Asp Arg Gly | |
| 1235 1240 1245 | |
| cgg gag gac agc ctg ccc aag ggc cac gtc atc tac gaa ggc aag aag | 3792 |
| Arg Glu Asp Ser Leu Pro Lys Gly His Val Ile Tyr Glu Gly Lys Lys | |
| 1250 1255 1260 | |
| ggc cac gtc ttg tcc tat gag ggt ggc atg tct gtg acc cag tgc tcc | 3840 |
| Gly His Val Leu Ser Tyr Glu Gly Gly Met Ser Val Thr Gln Cys Ser | |
| 1265 1270 1275 1280 | |
| aag gag gac ggc aga agc agc tca gga ccc ccc cat gag acg gcc gcc | 3888 |
| Lys Glu Asp Gly Arg Ser Ser Ser Gly Pro Pro His Glu Thr Ala Ala | |
| 1285 1290 1295 | |
| ccc aag cgc acc tat gac atg atg gag ggc cgc gtg ggc aga gcc atc | 3936 |
| Pro Lys Arg Thr Tyr Asp Met Met Glu Gly Arg Val Gly Arg Ala Ile | |
| 1300 1305 1310 | |
| tcc tca gcc agc atc gaa ggt ctc atg ggc cgt gcc atc ccg ccg gag | 3984 |
| Ser Ser Ala Ser Ile Glu Gly Leu Met Gly Arg Ala Ile Pro Pro Glu | |
| 1315 1320 1325 | |
| cga cac agc ccc cac cac ctc aaa gag cag cac cac atc cgc ggg tcc | 4032 |
| Arg His Ser Pro His His Leu Lys Glu Gln His His Ile Arg Gly Ser | |
| 1330 1335 1340 | |
| atc aca caa ggg atc cct cgg tcc tac gtg gag gca cag gag gac tac | 4080 |

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tcc ccg cac agc acc gtg ccc gag cac cac cca cac ccc atc tcg ccc 4800
Ser Pro His Ser Thr Val Pro Glu His His Pro His Pro Ile Ser Pro

| 1585 | 1590 | 1595 | 1600 | |
|---|------|------|------|------|
| tat gag cac ctg ctt cgg ggc gtg agt ggc gtg gac ctg tat cgc agc | | | | 4848 |
| Tyr Glu His Leu Leu Arg Gly Val Ser Gly Val Asp Leu Tyr Arg Ser | 1605 | 1610 | 1615 | |
| cac atc ccc ctg gcc ttc gac ccc acc tcc ata ccc cgc ggc atc cct | | | | 4896 |
| His Ile Pro Leu Ala Phe Asp Pro Thr Ser Ile Pro Arg Gly Ile Pro | 1620 | 1625 | 1630 | |
| ctg gac gca gcc gct gcc tac tac ctg ccc cga cac ctg gcc ccc aac | | | | 4944 |
| Leu Asp Ala Ala Ala Tyr Tyr Leu Pro Arg His Leu Ala Pro Asn | 1635 | 1640 | 1645 | |
| ccc acc tac ccg cac ctg tac cca ccc tac ctc atc cgc ggc tac ccc | | | | 4992 |
| Pro Thr Tyr Pro His Leu Tyr Pro Pro Tyr Leu Ile Arg Gly Tyr Pro | 1650 | 1655 | 1660 | |
| gac acg gcg gcg ctg gag aac cgg cag acc atc atc aat gac tac atc | | | | 5040 |
| Asp Thr Ala Ala Leu Glu Asn Arg Gln Thr Ile Ile Asn Asp Tyr Ile | 1665 | 1670 | 1675 | 1680 |
| acc tcg cag cag atg cac cac aac acg gcc acc gcc atg gcc cag cga | | | | 5088 |
| Thr Ser Gln Gln Met His His Asn Thr Ala Thr Ala Met Ala Gln Arg | 1685 | 1690 | 1695 | |
| gct gat atg ctg agg ggc ctc tcg ccc cgc gag tcc tcg ctg gca ctc | | | | 5136 |
| Ala Asp Met Leu Arg Gly Leu Ser Pro Arg Glu Ser Ser Leu Ala Leu | 1700 | 1705 | 1710 | |
| aac tac gct gcg ggt ccc cga ggc atc atc gac ctg tcc caa gtg cca | | | | 5184 |
| Asn Tyr Ala Ala Gly Pro Arg Gly Ile Ile Asp Leu Ser Gln Val Pro | 1715 | 1720 | 1725 | |
| cac ctg cct gtg ctc gtg ccc ccg aca cca ggc acc cca gcc acc gcc | | | | 5232 |
| His Leu Pro Val Leu Val Pro Pro Thr Pro Gly Thr Pro Ala Thr Ala | 1730 | 1735 | 1740 | |
| atg gac cgc ctt gcc tac ctc ccc acc gcg ccc cag ccc ttc agc agc | | | | 5280 |
| Met Asp Arg Leu Ala Tyr Leu Pro Thr Ala Pro Gln Pro Phe Ser Ser | 1745 | 1750 | 1755 | 1760 |
| cgc cac agc agc tcc cca ctc tcc cca gga ggt cca aca cac ttg aca | | | | 5328 |
| Arg His Ser Ser Ser Pro Leu Ser Pro Gly Gly Pro Thr His Leu Thr | 1765 | 1770 | 1775 | |
| aaa cca acc acc acg tcc tcg tcc gag cgg gag cga gac cgg gat cga | | | | 5376 |
| Lys Pro Thr Thr Thr Ser Ser Ser Glu Arg Glu Arg Asp Arg Asp Arg | 1780 | 1785 | 1790 | |
| gag cgg gac cgg gat cgg gag cgg gaa aag tcc atc ctc acg tcc acc | | | | 5424 |
| Glu Arg Asp Arg Asp Arg Glu Arg Glu Lys Ser Ile Leu Thr Ser Thr | 1795 | 1800 | 1805 | |
| acg acg gtg gag cac gca ccc atc tgg aga cct ggt aca gag cag agc | | | | 5472 |
| Thr Thr Val Glu His Ala Pro Ile Trp Arg Pro Gly Thr Glu Gln Ser | 1810 | 1815 | 1820 | |
| agc ggc agc agc ggc agc agc ggc ggg ggt ggg ggc agc agc agc cgc | | | | 5520 |
| Ser Gly Ser Ser Gly Ser Ser Gly Gly Gly Gly Gly Ser Ser Ser Arg | 1825 | 1830 | 1835 | 1840 |

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|---|------|
| ccc gcc tcc cac tcc cat gcc cac cag cac tcg ccc atc tcc cct cgg | 5568 |
| Pro Ala Ser His Ser His Ala His Gln His Ser Pro Ile Ser Pro Arg | |
| 1845 1850 1855 | |
| acc cag gat gcc ctc cag cag aga ccc agt gtg ctt cac aac aca ggc | 5616 |
| Thr Gln Asp Ala Leu Gln Gln Arg Pro Ser Val Leu His Asn Thr Gly | |
| 1860 1865 1870 | |
| atg aag ggt atc atc acc gct gtg gag ccc agc aag ccc acg gtc ctg | 5664 |
| Met Lys Gly Ile Ile Thr Ala Val Glu Pro Ser Lys Pro Thr Val Leu | |
| 1875 1880 1885 | |
| agg tcc acc tcc acc tcc tca ccc gtt cgc cca gct gcc aca ttc cca | 5712 |
| Arg Ser Thr Ser Thr Ser Ser Pro Val Arg Pro Ala Ala Thr Phe Pro | |
| 1890 1895 1900 | |
| cct gcc acc cac tgc cca ctg ggc ggc acc ctc gat ggg gtc tac cct | 5760 |
| Pro Ala Thr His Cys Pro Leu Gly Gly Thr Leu Asp Gly Val Tyr Pro | |
| 1905 1910 1915 1920 | |
| acc ctc atg gag ccc gtc ttg ctg ccc aag gag gcc ccc cgg gtc gcc | 5808 |
| Thr Leu Met Glu Pro Val Leu Leu Pro Lys Glu Ala Pro Arg Val Ala | |
| 1925 1930 1935 | |
| cgg cca gag cgg ccc cga gca gac acc ggc cat gcc ttc ctc gcc aag | 5856 |
| Arg Pro Glu Arg Pro Arg Ala Asp Thr Gly His Ala Phe Leu Ala Lys | |
| 1940 1945 1950 | |
| ccc cca gcc cgc tcc ggg ctg gag ccc gcc tcc tcc ccc agc aag ggc | 5904 |
| Pro Pro Ala Arg Ser Gly Leu Glu Pro Ala Ser Ser Pro Ser Lys Gly | |
| 1955 1960 1965 | |
| tcg gag ccc cgg ccc cta gtg cct cct gtc tct ggc cac gcc acc atc | 5952 |
| Ser Glu Pro Arg Pro Leu Val Pro Pro Val Ser Gly His Ala Thr Ile | |
| 1970 1975 1980 | |
| gcc cgc acc cct gcg aag aac ctc gca cct cac cac gcc agc ccg gac | 6000 |
| Ala Arg Thr Pro Ala Lys Asn Leu Ala Pro His His Ala Ser Pro Asp | |
| 1985 1990 1995 2000 | |
| ccg ccg gcg cca cct gcc tcg gcc tcg gac ccg cac cgg gaa aag act | 6048 |
| Pro Pro Ala Pro Pro Ala Ser Ala Ser Asp Pro His Arg Glu Lys Thr | |
| 2005 2010 2015 | |
| caa agt aaa ccc ttt tcc atc cag gaa ctg gaa ctc cgt tct ctg ggt | 6096 |
| Gln Ser Lys Pro Phe Ser Ile Gln Glu Leu Glu Leu Arg Ser Leu Gly | |
| 2020 2025 2030 | |
| tac cac ggc agc agc tac agc ccc gaa ggg gtg gag ccc gtc agc cct | 6144 |
| Tyr His Gly Ser Ser Tyr Ser Pro Glu Gly Val Glu Pro Val Ser Pro | |
| 2035 2040 2045 | |
| gtg agc tca ccc agt ctg acc cac gac aag ggg ctc ccc aag cac ctg | 6192 |
| Val Ser Ser Pro Ser Leu Thr His Asp Lys Gly Leu Pro Lys His Leu | |
| 2050 2055 2060 | |
| gaa gag ctc gac aag agc cac ctg gag ggg gag ctg cgg ccc aag cag | 6240 |
| Glu Glu Leu Asp Lys Ser His Leu Glu Gly Glu Leu Arg Pro Lys Gln | |
| 2065 2070 2075 2080 | |

| | |
|---|------|
| cca ggc ccc gtg aag ctt ggc ggg gag gcc gcc cac ctc cca cac ctg Pro Gly Pro Val Lys Leu Gly Gly Glu Ala Ala His Leu Pro His Leu 2085 2090 2095 | 6288 |
| cgg ccg ctg cct gag agc cag ccc tcg tcc agc ccg ctg ctc cag acc Arg Pro Leu Pro Glu Ser Gln Pro Ser Ser Ser Pro Leu Leu Gln Thr 2100 2105 2110 | 6336 |
| gcc cca ggg gtc aaa ggt cac cag cgg gtg gtc acc ctg gcc cag cac Ala Pro Gly Val Lys Gly His Gln Arg Val Val Thr Leu Ala Gln His 2115 2120 2125 | 6384 |
| atc agt gag gtc atc aca cag gac tac acc cgg cac cac cca cag cag Ile Ser Glu Val Ile Thr Gln Asp Tyr Thr Arg His His Pro Gln Gln 2130 2135 2140 | 6432 |
| ctc agc gca ccc ctg ccc gcc ccc ctc tac tcc ttc cct ggg gcc agc Leu Ser Ala Pro Leu Pro Ala Pro Leu Tyr Ser Phe Pro Gly Ala Ser 2145 2150 2155 2160 | 6480 |
| tgc ccc gtc ctg gac ctc cgc cgc cca ccc agt gac ctc tac ctc ccg Cys Pro Val Leu Asp Leu Arg Arg Pro Pro Ser Asp Leu Tyr Leu Pro 2165 2170 2175 | 6528 |
| ccc ccg gac cat ggt gcc ccg gcc cgt ggc tcc ccc cac agc gaa ggg Pro Pro Asp His Gly Ala Pro Ala Arg Gly Ser Pro His Ser Glu Gly 2180 2185 2190 | 6576 |
| ggc aag agg tct cca gag cca aac aag acg tcg gtc ttg ggt ggt ggt Gly Lys Arg Ser Pro Glu Pro Asn Lys Thr Ser Val Leu Gly Gly Gly 2195 2200 2205 | 6624 |
| gag gac ggt att gaa cct gtg tcc cca ccg gag ggc atg acg gag cca Glu Asp Gly Ile Glu Pro Val Ser Pro Pro Glu Gly Met Thr Glu Pro 2210 2215 2220 | 6672 |
| ggg cac tcc ccg agt gct gtg tac ccg ctg ctg tac ccg gat ggg gaa Gly His Ser Arg Ser Ala Val Tyr Pro Leu Leu Tyr Arg Asp Gly Glu 2225 2230 2235 2240 | 6720 |
| cag acg gag ccc agc agg atg ggc tcc aag tct cca ggc aac acc agc Gln Thr Glu Pro Ser Arg Met Gly Ser Lys Ser Pro Gly Asn Thr Ser 2245 2250 2255 | 6768 |
| cag ccg cca gcc ttc ttc agc aag ctg acc gag agc aac tcc gcc atg Gln Pro Pro Ala Phe Phe Ser Lys Leu Thr Glu Ser Asn Ser Ala Met 2260 2265 2270 | 6816 |
| gtc aag tcc aag aag caa gag atc aac aag aag ctg aac acc cac aac Val Lys Ser Lys Lys Gln Glu Ile Asn Lys Lys Leu Asn Thr His Asn 2275 2280 2285 | 6864 |
| cgg aat gag cct gaa tac aat atc agc cag cct ggg acg gag atc ttc Arg Asn Glu Pro Glu Tyr Asn Ile Ser Gln Pro Gly Thr Glu Ile Phe 2290 2295 2300 | 6912 |
| aat atg ccc gcc atc acc gga aca ggc ctt atg acc tat aga agc cag Asn Met Pro Ala Ile Thr Gly Thr Gly Leu Met Thr Tyr Arg Ser Gln 2305 2310 2315 2320 | 6960 |
| gcg gtg cag gaa cat gcc agc acc aac atg ggg ctg gag gcc ata att | 7008 |

Ala Val Gln Glu His Ala Ser Thr Asn Met Gly Leu Glu Ala Ile Ile
 2325 2330 2335

aga aag gca ctc atg ggt aaa tat gac cag tgg gaa gag tcc ccg ccg 7056
 Arg Lys Ala Leu Met Gly Lys Tyr Asp Gln Trp Glu Glu Ser Pro Pro
 2340 2345 2350

ctc agc gcc aat gct ttt aac cct ctg aat gcc agt gcc agc ctg ccc 7104
 Leu Ser Ala Asn Ala Phe Asn Pro Leu Asn Ala Ser Ala Ser Leu Pro
 2355 2360 2365

gct gct atg ccc ata acc gct gct gac gga cgg agt gac cac aca ctc 7152
 Ala Ala Met Pro Ile Thr Ala Ala Asp Gly Arg Ser Asp His Thr Leu
 2370 2375 2380

acc tcg cca ggt ggc ggc ggg aag gcc aag gtc tct ggc aga ccc agc 7200
 Thr Ser Pro Gly Gly Gly Lys Ala Lys Val Ser Gly Arg Pro Ser
 2385 2390 2395 2400

agc cga aaa gcc aag tcc ccg gcc ccg ggc ctg gca tct ggg gac cgg 7248
 Ser Arg Lys Ala Lys Ser Pro Ala Pro Gly Leu Ala Ser Gly Asp Arg
 2405 2410 2415

cca ccc tct gtc tcc tca gtg cac tcg gag gga gac tgc aac cgc cgg 7296
 Pro Pro Ser Val Ser Ser Val His Ser Glu Gly Asp Cys Asn Arg Arg
 2420 2425 2430

acg ccg ctc acc aac cgc gtg tgg gag gac agg ccc tcg tcc gca ggt 7344
 Thr Pro Leu Thr Asn Arg Val Trp Glu Asp Arg Pro Ser Ser Ala Gly
 2435 2440 2445

tcc acg cca ttc ccc tac aac ccc ctg atc atg ccg ctg cag gcg ggt 7392
 Ser Thr Pro Phe Pro Tyr Asn Pro Leu Ile Met Arg Leu Gln Ala Gly
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gtc atg gct tcc cca ccc cca ccg ggc ctc ccc gcg ggc agc ggg ccc 7440
 Val Met Ala Ser Pro Pro Pro Pro Gly Leu Pro Ala Gly Ser Gly Pro
 2465 2470 2475 2480

ctc gct ggc ccc cac cac gcc tgg gac gag gag ccc aag cca ctg ctc 7488
 Leu Ala Gly Pro His His Ala Trp Asp Glu Glu Pro Lys Pro Leu Leu
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<213> Mus musculus

<220>

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<222> (160)..(7545)

<400> 4

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| | | | | | | | | | | | | | | | | |
|---|-----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|-----|
| gagtgctcttg gctccaaagc ctacctggac cctaccacc atg tca gga tcc aca | | | | | | | | | | | | | | | | 174 |
| Met Ser Gly Ser Thr | | | | | | | | | | | | | | | | |
| 1 5 | | | | | | | | | | | | | | | | |
| cag cct gtg gca cag aca tgg cgg gct gct gag ccc cgc tac cca ccc | 222 | | | | | | | | | | | | | | | |
| Gln Pro Val Ala Gln Thr Trp Arg Ala Ala Glu Pro Arg Tyr Pro Pro | | | | | | | | | | | | | | | | |
| 10 15 20 | | | | | | | | | | | | | | | | |
| cat ggc atc tcc tac ccg gtg cag ata gcc cgg tcc cac acg gac gtg | 270 | | | | | | | | | | | | | | | |
| His Gly Ile Ser Tyr Pro Val Gln Ile Ala Arg Ser His Thr Asp Val | | | | | | | | | | | | | | | | |
| 25 30 35 | | | | | | | | | | | | | | | | |
| ggg ctg ctt gag tac caa cac cac ccc cgt gac tac acc tca cac ctg | 318 | | | | | | | | | | | | | | | |
| Gly Leu Leu Glu Tyr Gln His His Pro Arg Asp Tyr Thr Ser His Leu | | | | | | | | | | | | | | | | |
| 40 45 50 | | | | | | | | | | | | | | | | |
| tca ccc ggt tcc atc atc cag cca cag agg agg cgg ccc tca ctg ctg | 366 | | | | | | | | | | | | | | | |
| Ser Pro Gly Ser Ile Ile Gln Pro Gln Arg Arg Arg Pro Ser Leu Leu | | | | | | | | | | | | | | | | |
| 55 60 65 | | | | | | | | | | | | | | | | |
| tca gag ttc cag cct ggg agt gaa cgg tct cag gag ctc cac ctg cgc | 414 | | | | | | | | | | | | | | | |
| Ser Glu Phe Gln Pro Gly Ser Glu Arg Ser Gln Glu Leu His Leu Arg | | | | | | | | | | | | | | | | |
| 70 75 80 85 | | | | | | | | | | | | | | | | |
| cct gag tcc cgc acg ttc ctg cct gag ctg ggc aag ccc gac ata gaa | 462 | | | | | | | | | | | | | | | |
| Pro Glu Ser Arg Thr Phe Leu Pro Glu Leu Gly Lys Pro Asp Ile Glu | | | | | | | | | | | | | | | | |
| 90 95 100 | | | | | | | | | | | | | | | | |
| ttc acc gag agc aag cgc ccc cgc ctg gag cta cta ccc gat acc ctg | 510 | | | | | | | | | | | | | | | |
| Phe Thr Glu Ser Lys Arg Pro Arg Leu Glu Leu Leu Pro Asp Thr Leu | | | | | | | | | | | | | | | | |
| 105 110 115 | | | | | | | | | | | | | | | | |
| ctg cgc cca tca ccc ctg ctg gcc act ggg cag ccg agt ggg tct gaa | 558 | | | | | | | | | | | | | | | |
| Leu Arg Pro Ser Pro Leu Leu Ala Thr Gly Gln Pro Ser Gly Ser Glu | | | | | | | | | | | | | | | | |
| 120 125 130 | | | | | | | | | | | | | | | | |
| gac ctt acc aag gac cgt agc ctg gca ggc aag ctg gag cct gtg tca | 606 | | | | | | | | | | | | | | | |
| Asp Leu Thr Lys Asp Arg Ser Leu Ala Gly Lys Leu Glu Pro Val Ser | | | | | | | | | | | | | | | | |
| 135 140 145 | | | | | | | | | | | | | | | | |
| cct ccc agt ccc ccg cac gct gac cct gag cta gag ctg gcg cca tct | 654 | | | | | | | | | | | | | | | |
| Pro Pro Ser Pro Pro His Ala Asp Pro Glu Leu Glu Leu Ala Pro Ser | | | | | | | | | | | | | | | | |
| 150 155 160 165 | | | | | | | | | | | | | | | | |
| cga ctg tcc aag gag gag ctg atc cag aac aga ttg gac cgc gtg gac | 702 | | | | | | | | | | | | | | | |
| Arg Leu Ser Lys Glu Glu Leu Ile Gln Asn Arg Leu Asp Arg Val Asp | | | | | | | | | | | | | | | | |
| 170 175 180 | | | | | | | | | | | | | | | | |
| cgt gag atc acc atg gta gag cag cag atc tcc aag ctg aag aag aag | 750 | | | | | | | | | | | | | | | |
| Arg Glu Ile Thr Met Val Glu Gln Gln Ile Ser Lys Leu Lys Lys Lys | | | | | | | | | | | | | | | | |
| 185 190 195 | | | | | | | | | | | | | | | | |
| cag caa cag ttg gag gag gag gcc gcc aag ccg ccc gaa ccc gag aag | 798 | | | | | | | | | | | | | | | |
| Gln Gln Gln Leu Glu Glu Glu Ala Ala Lys Pro Pro Glu Pro Glu Lys | | | | | | | | | | | | | | | | |
| 200 205 210 | | | | | | | | | | | | | | | | |
| cct gtg tcg cca cca ccc ata gaa tca aag cac cga agc ctg gtc cag | 846 | | | | | | | | | | | | | | | |
| Pro Val Ser Pro Pro Pro Ile Glu Ser Lys His Arg Ser Leu Val Gln | | | | | | | | | | | | | | | | |
| 215 220 225 | | | | | | | | | | | | | | | | |
| atc atc tac gat gag aac cgg aag aaa gcc gaa gcc gca cac cgg atc | 894 | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | |
|-------------------|-------------------|-------------------|-------------------|-------------------|------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| Ile 230 | Ile | Tyr | Asp | Glu | Asn 235 | Arg | Lys | Lys | Ala | Glu 240 | Ala | Ala | His | Arg | Ile 245 | |
| cta Leu | gaa Glu | ggc Gly | ctg Leu | ggg Gly 250 | ccc Pro | cag Gln | gtg Val | gag Glu | ctg Leu 255 | cct Pro | ctg Leu | tac Tyr | aac Asn | cag Gln | ccg Pro | 942 |
| tct Ser | gac Asp | aca Thr | cgc Arg 265 | cag Gln | tac Tyr | cat His | gaa Glu | aac Asn 270 | atc Ile | aaa Lys | ata Ile | aac Asn | cag Gln 275 | gcg Ala | atg Met | 990 |
| cgg Arg | aag Lys | aag Lys 280 | ctg Leu | atc Ile | ttg Leu | tac Tyr | ttt Phe 285 | aag Lys | cgg Arg | agg Arg | aac Asn | cac His 290 | gcg Ala | cgc Arg | aag Lys | 1038 |
| cag Gln | tgg Trp 295 | gaa Glu | cag Gln | cgc Arg | ttc Phe | tgc Cys 300 | cag Gln | cgc Arg | tat Tyr | gac Asp | cag Gln 305 | ctc Leu | atg Met | gag Glu | gcg Ala | 1086 |
| tgg Trp 310 | gag Glu | aag Lys | aag Lys | gta Val 315 | gag Glu | cgc Arg | ata Ile | gag Glu | aac Asn | aat Asn 320 | ccg Pro | cga Arg | agg Arg | agg Arg | gcc Ala 325 | 1134 |
| aag Lys | gag Glu | agc Ser | aag Lys | gtg Val 330 | agg Arg | gag Glu | tac Tyr | tac Tyr | gag Glu 335 | aaa Lys | cag Gln | ttc Phe | ccg Pro | gag Glu 340 | atc Ile | 1182 |
| cgc Arg | aag Lys | cag Gln | cgg Arg 345 | gag Glu | ctg Leu | cag Gln | gag Glu | cgc Arg 350 | atg Met | cag Gln | agc Ser | agg Arg | gtg Val 355 | ggc Gly | cag Gln | 1230 |
| cgt Arg | ggc Gly | agt Ser 360 | ggg Gly | ctc Leu | tcc Ser | atg Met | tcc Ser 365 | gct Ala | gcc Ala | cgc Arg | agt Ser | gag Glu 370 | cat His | gag Glu | gtt Val | 1278 |
| tct Ser | gag Glu 375 | atc Ile | att Ile | gat Asp | ggc Gly | ttg Leu 380 | tct Ser | gag Glu | cag Gln | gag Glu | aac Asn 385 | ctg Leu | gag Glu | aag Lys | cag Gln | 1326 |
| atg Met 390 | cgc Arg | cag Gln | ctg Leu | gcc Ala 395 | gtg Val | atc Ile | cgc Arg | cat His | gtt Val 400 | gta Val | cga Arg | cgc Arg | gac Asp | cag Gln | cag Gln 405 | 1374 |
| agg Arg | atc Ile | aag Lys | ttc Phe | atc Ile 410 | aac Asn | atg Met | aat Asn | gga Gly | ctc Leu 415 | atg Met | gat Asp | gac Asp | ccc Pro | atg Met | aag Lys | 1422 |
| gtc Val | tac Tyr | aag Lys | gac Asp 425 | cgt Arg | cag Gln | gtt Val | acc Thr | aac Asn | atg Met | tgg Trp | agc Ser | gag Glu | cag Gln 435 | gag Glu | agg Arg | 1470 |
| gac Asp | acc Thr | ttc Phe 440 | cgt Arg | gag Glu | aag Lys | ttt Phe | atg Met 445 | cag Gln | cac His | cct Pro | aag Lys | aac Asn 450 | ttt Phe | ggc Gly | ctg Leu | 1518 |
| att Ile | gcc Ala 455 | tca Ser | ttc Phe | ctg Leu | gag Glu | aga Arg 460 | aag Lys | acg Thr | gtc Val | gct Ala | gag Glu 465 | tgt Cys | gtc Val | ctc Leu | tat Tyr | 1566 |
| tac Tyr | tac Tyr | ctg Leu | acc Thr | aag Lys | aag Lys | aat Asn | gaa Glu | aat Asn | tac Tyr | aag Lys | agc Ser | ttg Leu | gtg Val | agg Arg | cgg Arg | 1614 |

| 470 | | 475 | | 480 | | 485 | |
|---|--|-----|--|-----|--|-----|------|
| agc tat cgg cgc cgt ggc aag agc cag cag cag cag cag cag caa caa | | | | | | | 1662 |
| Ser Tyr Arg Arg Arg Gly Lys Ser Gln Gln Gln Gln Gln Gln Gln Gln | | | | | | | |
| | | 490 | | 495 | | 500 | |
| cag cag cag cag cag cag atg gca cgg agc agc cag gag gag aag gag | | | | | | | 1710 |
| Gln Gln Gln Gln Gln Gln Met Ala Arg Ser Ser Gln Glu Glu Lys Glu | | | | | | | |
| | | 505 | | 510 | | 515 | |
| gag aag gag aag gag aag gag gcc gac aag gag gaa gag aag cag gat | | | | | | | 1758 |
| Glu Lys Glu Lys Glu Lys Glu Ala Asp Lys Glu Glu Glu Lys Gln Asp | | | | | | | |
| | | 520 | | 525 | | 530 | |
| gcg gag aac gag aag gaa gaa ctc agc aag gag aag aca gac gac act | | | | | | | 1806 |
| Ala Glu Asn Glu Lys Glu Glu Leu Ser Lys Glu Lys Thr Asp Asp Thr | | | | | | | |
| | | 535 | | 540 | | 545 | |
| tct ggc gag gac aac gat gag aaa gag gcc gtg gcc tcc aaa ggc cgc | | | | | | | 1854 |
| Ser Gly Glu Asp Asn Asp Glu Lys Glu Ala Val Ala Ser Lys Gly Arg | | | | | | | |
| | | 550 | | 555 | | 560 | 565 |
| aaa act gcc aac agc caa ggc cgc cgc aaa ggc cgt atc acg cgc tcc | | | | | | | 1902 |
| Lys Thr Ala Asn Ser Gln Gly Arg Arg Lys Gly Arg Ile Thr Arg Ser | | | | | | | |
| | | 570 | | 575 | | 580 | |
| atg gcc aac gag gcc aac cat gag gag aca gcc acc cca cag caa agt | | | | | | | 1950 |
| Met Ala Asn Glu Ala Asn His Glu Glu Thr Ala Thr Pro Gln Gln Ser | | | | | | | |
| | | 585 | | 590 | | 595 | |
| tca gag ctg gct tcc atg gag atg aac gag agt tct cgc tgg act gag | | | | | | | 1998 |
| Ser Glu Leu Ala Ser Met Glu Met Asn Glu Ser Ser Arg Trp Thr Glu | | | | | | | |
| | | 600 | | 605 | | 610 | |
| gaa gag atg gag aca gca aag aaa ggc ctc ctg gaa cat ggg agg aac | | | | | | | 2046 |
| Glu Glu Met Glu Thr Ala Lys Lys Gly Leu Leu Glu His Gly Arg Asn | | | | | | | |
| | | 615 | | 620 | | 625 | |
| tgg tca gcc att gcc cgc atg gtg ggc tcc aag acc gtg tcc cag tgt | | | | | | | 2094 |
| Trp Ser Ala Ile Ala Arg Met Val Gly Ser Lys Thr Val Ser Gln Cys | | | | | | | |
| | | 630 | | 635 | | 640 | 645 |
| aag aac ttc tac ttc aac tac aag aag agg cag aac ctg gac gaa atc | | | | | | | 2142 |
| Lys Asn Phe Tyr Phe Asn Tyr Lys Lys Arg Gln Asn Leu Asp Glu Ile | | | | | | | |
| | | 650 | | 655 | | 660 | |
| ctt cag cag cac aag cta aag atg gag aag gag agg aac gct cgg agg | | | | | | | 2190 |
| Leu Gln Gln His Lys Leu Lys Met Glu Lys Glu Arg Asn Ala Arg Arg | | | | | | | |
| | | 665 | | 670 | | 675 | |
| aag aag aag aag acc cca gct gcg gcg agc gag gag aca gcc ttc cca | | | | | | | 2238 |
| Lys Lys Lys Lys Thr Pro Ala Ala Ser Glu Glu Thr Ala Phe Pro | | | | | | | |
| | | 680 | | 685 | | 690 | |
| cct gcc gct gag gac gaa gag atg gaa gca tca ggc gca agt gcc aat | | | | | | | 2286 |
| Pro Ala Ala Glu Asp Glu Glu Met Glu Ala Ser Gly Ala Ser Ala Asn | | | | | | | |
| | | 695 | | 700 | | 705 | |
| gag gaa gag ctg gcg gag gag gca gaa gcc tca cag gcc tct ggg aat | | | | | | | 2334 |
| Glu Glu Glu Leu Ala Glu Glu Ala Glu Ala Ser Gln Ala Ser Gly Asn | | | | | | | |
| | | 710 | | 715 | | 720 | 725 |

0004094 0004094

| | | | | | | | | | | | | | | | | |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| gag Glu | gtt Val | ccc Pro | aga Arg | gtt Val 730 | ggg Gly | gag Glu | tgc Cys | agt Ser | ggc Gly 735 | cca Pro | gct Ala | gct Ala | gtc Val | aac Asn 740 | aac Asn | 2382 |
| agc Ser | tct Ser | gat Asp | act Thr 745 | gag Glu | agt Ser | gtc Val | cca Pro | tcc Ser 750 | ccg Pro | cgt Arg | tca Ser | gaa Glu | gcc Ala 755 | acg Thr | aag Lys | 2430 |
| gac Asp | act Thr | ggg Gly 760 | cct Pro | aaa Lys | ccc Pro | act Thr | ggc Gly 765 | act Thr | gaa Glu | gca Ala | ttg Leu | ccc Pro | gct Ala | gcc Ala | acc Thr | 2478 |
| cag Gln | cca Pro 775 | cct Pro | gtt Val | cct Pro | cct Pro | cca Pro 780 | gaa Glu | gaa Glu | ccg Pro | gca Ala | gca Ala 785 | gcc Ala | cct Pro | gct Ala | gag Glu | 2526 |
| ccc Pro 790 | tcc Ser | cca Pro | gtc Val | cct Pro | gat Asp 795 | gcc Ala | agt Ser | ggc Gly | cca Pro | cca Pro 800 | tcc Ser | cca Pro | gag Glu | cct Pro | tcc Ser 805 | 2574 |
| cca Pro | tca Ser | cct Pro | gcc Ala | gca Ala 810 | ccc Pro | ccg Pro | gct Ala | act Thr | gtg Val 815 | gac Asp | aag Lys | gat Asp | gaa Glu | caa Gln 820 | gaa Glu | 2622 |
| gcc Ala | ccg Pro | gct Ala | gct Ala 825 | cca Pro | gct Ala | ccc Pro | cag Gln | aca Thr 830 | gaa Glu | gat Asp | gcc Ala | aag Lys | gag Glu 835 | cag Gln | aag Lys | 2670 |
| tct Ser | gag Glu | gcc Ala 840 | gag Glu | gag Glu | atc Ile | gat Asp | gtg Val 845 | gga Gly | aag Lys | cca Pro | gag Glu | gag Glu | ccc Pro | gag Glu | gcc Ala | 2718 |
| tct Ser | gag Glu 855 | gag Glu | ccc Pro | ccg Pro | gag Glu | agt Ser 860 | gta Val | aag Lys | agt Ser | gac Asp | cac His 865 | aag Lys | gag Glu | gag Glu | acc Thr | 2766 |
| gag Glu 870 | gaa Glu | gag Glu | cct Pro | gaa Glu | gac Asp 875 | aaa Lys | gcc Ala | aag Lys | ggc Gly | aca Thr 880 | gag Glu | gcc Ala | att Ile | gaa Glu | act Thr 885 | 2814 |
| gtg Val | tct Ser | gag Glu | gca Ala | cca Pro 890 | ctt Leu | aag Lys | gtg Val | gag Glu | gag Glu 895 | gct Ala | ggg Gly | agc Ser | aag Lys | gca Ala 900 | gct Ala | 2862 |
| gtg Val | acc Thr | aag Lys | ggg Gly 905 | tcc Ser | agc Ser | tca Ser | ggg Gly 910 | gcc Ala | acc Thr | cag Gln | gac Asp | agt Ser | gac Asp 915 | tcc Ser | agt Ser | 2910 |
| gcc Ala | acc Thr | tgc Cys 920 | agt Ser | gcc Ala | gat Asp | gag Glu | gtg Val 925 | gac Asp | gaa Glu | ccc Pro | gaa Glu | gga Gly 930 | ggg Gly | gac Asp | aag Lys | 2958 |
| ggc Gly | agg Arg 935 | ctg Leu | ctg Leu | tca Ser | cca Pro | agg Arg 940 | ccc Pro | agc Ser | ctc Leu | ctc Leu | acc Thr 945 | ccg Pro | gct Ala | gga Gly | gat Asp | 3006 |
| ccc Pro 950 | cgg Arg | gcc Ala | agt Ser | acc Thr | tgc Ser 955 | ccc Pro | cag Gln | aag Lys | ccg Pro | ctg Leu 960 | gac Asp | ctg Leu | aag Lys | cag Gln | ctg Leu 965 | 3054 |

| | | | | | | | | | | | | | | | | |
|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|------|
| aag Lys | cag Gln | cga Arg | gca Ala | gcc Ala 970 | gcc Ala | atc Ile | ccc Pro | cct Pro | atc Ile 975 | gtc Val | acc Thr | aag Lys | gtc Val | cat His 980 | gag Glu | 3102 |
| ccc Pro | ccc Pro | cgg Arg | gag Glu 985 | gac Asp | aca Thr | gta Val | ccc Pro | cca Pro 990 | aag Lys | cca Pro | gtt Val | ccc Pro | cct Pro 995 | gtg Val | cct Pro | 3150 |
| cca Pro | ccc Pro | acg Thr 1000 | cag Gln | cac His | cta Leu | cag Gln | cca Pro 1005 | gag Glu | ggg Gly | gac Asp | gtg Val 1010 | tct Ser | cag Gln | cag Gln | tcg Ser | 3198 |
| gga Gly 1015 | gga Gly | agt Ser | cca Pro | cgt Arg | ggc Gly 1020 | aag Lys | tcc Ser | cgc Arg | agc Ser | cca Pro 1025 | gtg Val | cct Pro | cct Pro | gcc Ala | gag Glu | 3246 |
| aaa Lys 1030 | gag Glu | gca Ala | gag Glu | aaa Lys 1035 | ccc Pro | gca Ala | ttc Phe | ttt Phe | ccg Pro 1040 | gct Ala | ttc Phe | cca Pro | act Thr | gag Glu | ggc Gly 1045 | 3294 |
| caa Gln | agc Ser | tac Tyr | cga Arg 1050 | ctg Leu | agc Ser | ccc Pro | cac His | gct Ala 1055 | ggg Gly | cat His | cgg Arg | ctg Leu | cct Pro 1060 | tcc Ser | cat His | 3342 |
| cct Pro | cca Pro | cgg Arg 1065 | gag Glu | gtg Val | atc Ile | aag Lys | act Thr 1070 | tcc Ser | aca Thr | cgc Arg | gct Ala | gac Asp 1075 | cct Pro | ctc Leu | ttc Phe | 3390 |
| tcc Ser | tac Tyr 1080 | aca Thr | ccc Pro | ccc Pro | ggg Gly | cac His 1085 | ccg Pro | ctg Leu | cct Pro | ctg Leu | ggc Gly 1090 | ctc Leu | cac His | gat Asp | agt Ser | 3438 |
| gcc Ala 1095 | cgg Arg | ccc Pro | gtc Val | ctg Leu | cca Pro 1100 | cgt Arg | ccc Pro | ccc Pro | atc Ile | tct Ser 1105 | aac Asn | ccc Pro | cca Pro | ccc Pro | ctc Leu | 3486 |
| atc Ile 1110 | tcc Ser | tct Ser | gcc Ala | aag Lys 1115 | cat His | ccc Pro | ggc Gly | gta Val | ctt Leu 1120 | gag Glu | agg Arg | cag Gln | ctg Leu | ggg Gly | gcc Ala 1125 | 3534 |
| atc Ile | tcc Ser | cag Gln | ggg Gly 1130 | atg Met | tca Ser | gtc Val | cag Gln | ctt Leu 1135 | cgt Arg | gtg Val | cct Pro | cac His | tca Ser 1140 | gag Glu | cat His | 3582 |
| gcc Ala | aag Lys | ccc Pro | atg Met 1145 | ggc Gly | cct Pro | ctc Leu | acc Thr 1150 | atg Met | gag Glu | ctg Leu | ccc Pro | ctt Leu 1155 | gcc Ala | gtg Val | gac Asp | 3630 |
| cct Pro | aag Lys 1160 | aag Lys | ctg Leu | ggg Gly | aca Thr | gca Ala 1165 | ctg Leu | gct Ala | ccg Pro | cca Pro | cca Pro | gtg Val 1170 | gaa Glu | gca Ala | tca Ser | 3678 |
| cca Pro 1175 | agg Arg | gcc Ala | tcc Ser | cag Gln | tac Tyr | ccg Pro 1180 | ggc Gly | tgc Cys | aga Arg | cgg Arg | ccc Pro 1185 | cag Gln | cta Leu | cag Gln | agg Arg | 3726 |
| ctc Leu 1190 | tat Tyr | cac His | cca Pro | cgc Arg | acg Thr 1195 | ccc Pro | gca Ala | gac Asp | gtc Val 1200 | ctc Leu | tac Tyr | aag Lys | ggg Gly | acc Thr 1205 | atc Ile | 3774 |
| agc | agg | atc | gtc | ggg | gag | gac | agc | cca | aqt | cgc | ctt | gac | cgg | gca | cga | 3822 |

| | |
|---|------|
| Ser Arg Ile Val Gly Glu Asp Ser Pro Ser Arg Leu Asp Arg Ala Arg | |
| 1210 1215 1220 | |
| gag gac acc ctg ccc aag ggc cat gtc atc tat gag ggc aag aaa ggc | 3870 |
| Glu Asp Thr Leu Pro Lys Gly His Val Ile Tyr Glu Gly Lys Lys Gly | |
| 1225 1230 1235 | |
| cac gtc cta tcc tat gaa ggt ggt atg tcc gtg tca cag tgc tct aag | 3918 |
| His Val Leu Ser Tyr Glu Gly Gly Met Ser Val Ser Gln Cys Ser Lys | |
| 1240 1245 1250 | |
| gag gat gga agg agc agc tcg ggc cca ccc cat gag act gcc gcc cct | 3966 |
| Glu Asp Gly Arg Ser Ser Ser Gly Pro Pro His Glu Thr Ala Ala Pro | |
| 1255 1260 1265 | |
| aaa cgc acc tat gac atg atg gag ggc cgt gta ggc agg act gtc acc | 4014 |
| Lys Arg Thr Tyr Asp Met Met Glu Gly Arg Val Gly Arg Thr Val Thr | |
| 1270 1275 1280 1285 | |
| tca gcc agc ata gag gga ctc atg ggc cgc gcc atc cct gag cag cac | 4062 |
| Ser Ala Ser Ile Glu Gly Leu Met Gly Arg Ala Ile Pro Glu Gln His | |
| 1290 1295 1300 | |
| agc ccc cac ctc aag gag cag cat cac atc cga ggc tcc atc acg caa | 4110 |
| Ser Pro His Leu Lys Glu Gln His His Ile Arg Gly Ser Ile Thr Gln | |
| 1305 1310 1315 | |
| ggc atc ccg agg tcc tat gtg gag gcg cag gag gac tac tta cgg cgg | 4158 |
| Gly Ile Pro Arg Ser Tyr Val Glu Ala Gln Glu Asp Tyr Leu Arg Arg | |
| 1320 1325 1330 | |
| gag gcc aag ctc ttg aag cga gaa ggg aca cca cct ccc cca cca cca | 4206 |
| Glu Ala Lys Leu Leu Lys Arg Glu Gly Thr Pro Pro Pro Pro Pro | |
| 1335 1340 1345 | |
| cct cgg gac ctg act gag acc tac aag ccc cgg ccc ctg gac cct ctg | 4254 |
| Pro Arg Asp Leu Thr Glu Thr Tyr Lys Pro Arg Pro Leu Asp Pro Leu | |
| 1350 1355 1360 1365 | |
| ggt ccc ctg aag ctg aag ccg act cac gag ggt gtg gta gca act gtg | 4302 |
| Gly Pro Leu Lys Leu Lys Pro Thr His Glu Gly Val Val Ala Thr Val | |
| 1370 1375 1380 | |
| aag gag gcg ggc cgc tct atc cat gag atc ccg aga gag gag ctg cgc | 4350 |
| Lys Glu Ala Gly Arg Ser Ile His Glu Ile Pro Arg Glu Glu Leu Arg | |
| 1385 1390 1395 | |
| cgc aca cct gag cta ccc ctg gca cca cgg cct ctg aag gag ggt tcc | 4398 |
| Arg Thr Pro Glu Leu Pro Leu Ala Pro Arg Pro Leu Lys Glu Gly Ser | |
| 1400 1405 1410 | |
| atc acc cag ggc acc cca ctc aag tac gac tct ggg gca ccc tcc act | 4446 |
| Ile Thr Gln Gly Thr Pro Leu Lys Tyr Asp Ser Gly Ala Pro Ser Thr | |
| 1415 1420 1425 | |
| ggc acc aag aaa cac gac gtg cgc tcc atc atc ggc agc ccc ggc cgg | 4494 |
| Gly Thr Lys Lys His Asp Val Arg Ser Ile Ile Gly Ser Pro Gly Arg | |
| 1430 1435 1440 1445 | |
| cct ttc cct gcc ctg cac ccg ctg gac ata atg gct gac gcc cgg gca | 4542 |
| Pro Phe Pro Ala Leu His Pro Leu Asp Ile Met Ala Asp Ala Arg Ala | |

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| 1450 | 1455 | 1460 | |
|---|-----------------------------|------|--|
| ctg gag cgt gcc tgc tat gaa gag agt | ctg aag agc cgg tca ggg acc | 4590 | |
| Leu Glu Arg Ala Cys Tyr Glu Glu Ser | Leu Lys Ser Arg Ser Gly Thr | | |
| 1465 | 1470 | 1475 | |
| agc agt ggt gca ggg ggc tcc atc aca cgt ggg gct cca gtc gtc gtg | 4638 | | |
| Ser Ser Gly Ala Gly Gly Ser Ile Thr Arg Gly Ala Pro Val Val Val | | | |
| 1480 | 1485 | 1490 | |
| cct gaa ctg ggc aag cca cgg caa agc cca ctg act tac gaa gac cac | 4686 | | |
| Pro Glu Leu Gly Lys Pro Arg Gln Ser Pro Leu Thr Tyr Glu Asp His | | | |
| 1495 | 1500 | 1505 | |
| ggg gca ccc ttc acc agt cac ctg cca cgt ggc tcc cct gtg acc acg | 4734 | | |
| Gly Ala Pro Phe Thr Ser His Leu Pro Arg Gly Ser Pro Val Thr Thr | | | |
| 1510 | 1515 | 1520 | |
| agg gag ccc acg cca cgc ctt cag gaa ggc agc ctc cta tcc agc aag | 4782 | | |
| Arg Glu Pro Thr Pro Arg Leu Gln Glu Gly Ser Leu Leu Ser Ser Lys | | | |
| 1530 | 1535 | 1540 | |
| gcg tcc cag gac cgg aag ctg aca tct aca ccc cgg gag atc gcc aag | 4830 | | |
| Ala Ser Gln Asp Arg Lys Leu Thr Ser Thr Pro Arg Glu Ile Ala Lys | | | |
| 1545 | 1550 | 1555 | |
| tcc cca cac agc act gtg ccc gag cac cac cct cac ccc atc tcc ccc | 4878 | | |
| Ser Pro His Ser Thr Val Pro Glu His His Pro His Pro Ile Ser Pro | | | |
| 1560 | 1565 | 1570 | |
| tat gag cac ttg ctc cgg ggc gtg act ggt gtg gac ctg tac cgt ggt | 4926 | | |
| Tyr Glu His Leu Leu Arg Gly Val Thr Gly Val Asp Leu Tyr Arg Gly | | | |
| 1575 | 1580 | 1585 | |
| cac atc cca ttg gcc ttt gac ccc acc tcc ata ccc cga ggg atc cct | 4974 | | |
| His Ile Pro Leu Ala Phe Asp Pro Thr Ser Ile Pro Arg Gly Ile Pro | | | |
| 1590 | 1595 | 1600 | |
| ctg gaa gca gca gcc gca gcc tac tac ctg ccc cgg cac ttg gcc ccc | 5022 | | |
| Leu Glu Ala Ala Ala Ala Ala Tyr Tyr Leu Pro Arg His Leu Ala Pro | | | |
| 1610 | 1615 | 1620 | |
| agc ccc acc tac cca cac ctg tac cca cct tac ctc atc cgc ggc tac | 5070 | | |
| Ser Pro Thr Tyr Pro His Leu Tyr Pro Pro Tyr Leu Ile Arg Gly Tyr | | | |
| 1625 | 1630 | 1635 | |
| cct gac acg gcg gcc ctg gag aac cgc cag acc atc atc aat gac tac | 5118 | | |
| Pro Asp Thr Ala Ala Leu Glu Asn Arg Gln Thr Ile Ile Asn Asp Tyr | | | |
| 1640 | 1645 | 1650 | |
| atc acc tcg cag cag atg cac cac aac gct gcc tcc gcc atg gcc cag | 5166 | | |
| Ile Thr Ser Gln Gln Met His His Asn Ala Ala Ser Ala Met Ala Gln | | | |
| 1655 | 1660 | 1665 | |
| cgt gct gac atg ctg agg ggt ctg tca ccg cga gag tcc tcg ctg gcc | 5214 | | |
| Arg Ala Asp Met Leu Arg Gly Leu Ser Pro Arg Glu Ser Ser Leu Ala | | | |
| 1670 | 1675 | 1680 | |
| ctc aat tat tcc gct ggc cca aga ggc att atc gac ctg tcc caa gtg | 5262 | | |
| Leu Asn Tyr Ser Ala Gly Pro Arg Gly Ile Ile Asp Leu Ser Gln Val | | | |
| 1690 | 1695 | 1700 | |

10220-102400

| | | | | | | | | | | | | | | | | |
|------|-----|------|------|------|------|------|------|------|------|-----|------|------|------|------|------|------|
| cca | cac | ctg | ccc | gtg | ctg | gtg | cca | cca | acg | cca | ggc | acc | cct | gcc | acc | 5310 |
| Pro | His | Leu | Pro | Val | Leu | Val | Pro | Pro | Thr | Pro | Gly | Thr | Pro | Ala | Thr | |
| | | 1705 | | | | | | 1710 | | | | | 1715 | | | |
| gcc | atc | gac | cgc | ctt | gcc | tac | ctc | ccc | act | gcg | ccc | cca | ccc | ttc | agc | 5358 |
| Ala | Ile | Asp | Arg | Leu | Ala | Tyr | Leu | Pro | Thr | Ala | Pro | Pro | Pro | Phe | Ser | |
| | | 1720 | | | | | 1725 | | | | | 1730 | | | | |
| agc | cgc | cac | agt | agc | tca | ccg | ctg | tcc | cca | gga | ggc | ccc | act | cac | cta | 5406 |
| Ser | Arg | His | Ser | Ser | Ser | Pro | Leu | Ser | Pro | Gly | Gly | Pro | Thr | His | Leu | |
| | | 1735 | | | | | 1740 | | | | 1745 | | | | | |
| gct | aaa | cca | act | gcc | aca | tct | tca | tcg | gag | cgg | gaa | cgg | gaa | cgt | gag | 5454 |
| Ala | Lys | Pro | Thr | Ala | Thr | Ser | Ser | Ser | Glu | Arg | Glu | Arg | Glu | Arg | Glu | |
| 1750 | | | | | 1755 | | | | 1760 | | | | | | 1765 | |
| cgg | gaa | cga | gac | aag | tcc | atc | ctc | acg | tct | acc | act | aca | gtg | gag | cat | 5502 |
| Arg | Glu | Arg | Asp | Lys | Ser | Ile | Leu | Thr | Ser | Thr | Thr | Thr | Val | Glu | His | |
| | | | 1770 | | | | | 1775 | | | | | | 1780 | | |
| gca | ccc | atc | tgg | aga | cct | ggc | acg | gag | cag | agc | agc | ggg | gct | ggg | ggc | 5550 |
| Ala | Pro | Ile | Trp | Arg | Pro | Gly | Thr | Glu | Gln | Ser | Ser | Gly | Ala | Gly | Gly | |
| | | 1785 | | | | | 1790 | | | | | 1795 | | | | |
| agc | agc | cgc | ccc | gcc | tcc | cac | acc | cac | cag | cac | tcg | ccc | atc | tcc | ccc | 5598 |
| Ser | Ser | Arg | Pro | Ala | Ser | His | Thr | His | Gln | His | Ser | Pro | Ile | Ser | Pro | |
| | | 1800 | | | | | 1805 | | | | | 1810 | | | | |
| cgg | acc | cag | gac | gcc | ttg | cag | cag | agg | ccc | agt | gtg | ctg | cac | aac | acg | 5646 |
| Arg | Thr | Gln | Asp | Ala | Leu | Gln | Gln | Arg | Pro | Ser | Val | Leu | His | Asn | Thr | |
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| agc | atg | aag | ggc | gtg | gtc | acc | tcc | gtg | gaa | ccc | ggc | acg | ccc | acg | gtc | 5694 |
| Ser | Met | Lys | Gly | Val | Val | Thr | Ser | Val | Glu | Pro | Gly | Thr | Pro | Thr | Val | |
| 1830 | | | | | 1835 | | | | 1840 | | | | | | 1845 | |
| ctg | agg | tcc | acc | tcc | acc | tct | tcg | cct | gtc | cgc | cca | gct | gcc | aca | ttc | 5742 |
| Leu | Arg | Ser | Thr | Ser | Thr | Ser | Ser | Pro | Val | Arg | Pro | Ala | Ala | Thr | Phe | |
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| cca | cct | gcc | acc | cac | tgc | cca | ctt | ggc | ggc | acc | ctt | gaa | ggg | gtc | tac | 5790 |
| Pro | Pro | Ala | Thr | His | Cys | Pro | Leu | Gly | Gly | Thr | Leu | Glu | Gly | Val | Tyr | |
| | | 1865 | | | | | 1870 | | | | | 1875 | | | | |
| cct | acc | ctc | atg | gag | ccc | gtc | ctg | tta | ccc | aag | gag | acc | tct | cgg | gtc | 5838 |
| Pro | Thr | Leu | Met | Glu | Pro | Val | Leu | Leu | Pro | Lys | Glu | Thr | Ser | Arg | Val | |
| | | 1880 | | | | | 1885 | | | | | 1890 | | | | |
| gcc | cgg | ccc | gag | cgg | ccc | cgt | gtg | gac | ggc | ggc | cat | gcc | ttc | ctc | acc | 5886 |
| Ala | Arg | Pro | Glu | Arg | Pro | Arg | Val | Asp | Gly | Gly | His | Ala | Phe | Leu | Thr | |
| | | 1895 | | | | 1900 | | | | | 1905 | | | | | |
| aaa | ccc | ccg | gcc | cgg | gag | ccc | gcc | tcc | | | | | | | | |

| | |
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| acc cca gca aag agc ctt gca ccc cac cat gcc agt ccg gac ccg ccg | 6030 |
| Thr Pro Ala Lys Ser Leu Ala Pro His His Ala Ser Pro Asp Pro Pro | |
| 1945 1950 1955 | |
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| Gly Pro Thr Ser Ala Ser Asp Leu His Arg Glu Lys Thr Gln Ser Lys | |
| 1960 1965 1970 | |
| ccc ttt tcc atc cag gaa ttg gaa ctc cgt tct ctg ggt tac cac agt | 6126 |
| Pro Phe Ser Ile Gln Glu Leu Glu Leu Arg Ser Leu Gly Tyr His Ser | |
| 1975 1980 1985 | |
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| Gly Ala Gly Tyr Ser Pro Asp Gly Val Glu Pro Ile Ser Pro Val Ser | |
| 1990 1995 2000 2005 | |
| tcc ccc agc ctg acc cac gac aag ggg ctc tcc aaa cct ctg gaa gag | 6222 |
| Ser Pro Ser Leu Thr His Asp Lys Gly Leu Ser Lys Pro Leu Glu Glu | |
| 2010 2015 2020 | |
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| Leu Glu Lys Ser His Leu Glu Gly Glu Leu Arg His Lys Gln Pro Gly | |
| 2025 2030 2035 | |
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| Pro Met Lys Leu Ser Ala Glu Ala His Leu Pro His Leu Arg Pro | |
| 2040 2045 2050 | |
| ctg ccc gag agc cag ccc tca tcc agc cca ctc ctc cag act gcc cca | 6366 |
| Leu Pro Glu Ser Gln Pro Ser Ser Ser Pro Leu Leu Gln Thr Ala Pro | |
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| Gly Ile Lys Gly His Gln Arg Val Val Thr Leu Ala Gln His Ile Ser | |
| 2070 2075 2080 2085 | |
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| Glu Val Ile Thr Gln Asp Tyr Thr Arg His His Pro Gln Gln Leu Ser | |
| 2090 2095 2100 | |
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| Gly Pro Leu Pro Ala Pro Leu Tyr Ser Phe Pro Gly Ala Ser Cys Pro | |
| 2105 2110 2115 | |
| gtg ctg gat ctt cgc cgc cca ccc agt gac ctc tac ctc cca ccc ccc | 6558 |
| Val Leu Asp Leu Arg Arg Pro Pro Ser Asp Leu Tyr Leu Pro Pro Pro | |
| 2120 2125 2130 | |
| gac cat ggc acc cca gcc cgg gga tcc ccc cac agt gaa ggg ggc aaa | 6606 |
| Asp His Gly Thr Pro Ala Arg Gly Ser Pro His Ser Glu Gly Gly Lys | |
| 2135 2140 2145 | |
| agg tcc cca gaa ccc agc aaa aca tcg gtc ctg ggc agc agt gag gat | 6654 |
| Arg Ser Pro Glu Pro Ser Lys Thr Ser Val Leu Gly Ser Ser Glu Asp | |
| 2150 2155 2160 2165 | |
| gcc att gag cct gtg tcc cca cca gag ggc atg act gag cca gga cat | 6702 |
| Ala Ile Glu Pro Val Ser Pro Pro Glu Gly Met Thr Glu Pro Gly His | |
| 2170 2175 2180 | |
| gct cgg agc gct gtg tac cca ctg ctg tat cga gac ggg gaa cag ggc | 6750 |

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| Ala | Arg | Ser | Ala | Val | Tyr | Pro | Leu | Leu | Tyr | Arg | Asp | Gly | Glu | Gln | Gly | | |
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| 2190 | | | | | | | | | | | | | | | | | |
| 2195 | | | | | | | | | | | | | | | | | |
| gag | ccc | agg | atg | ggc | tct | aag | tct | cca | ggc | aac | acc | agc | cag | ccg | cca | 6798 | |
| Glu | Pro | Arg | Met | Gly | Ser | Lys | Ser | Pro | Gly | Asn | Thr | Ser | Gln | Pro | Pro | | |
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| gcc | ttc | ttc | agt | aag | ctg | act | gag | agc | aac | tcc | gcc | atg | gtg | aag | tcg | 6846 | |
| Ala | Phe | Phe | Ser | Lys | Leu | Thr | Glu | Ser | Asn | Ser | Ala | Met | Val | Lys | Ser | | |
| 2215 | | | | | | 2220 | | | | | | 2225 | | | | | |
| aag | aag | cag | gag | atc | aac | aag | aaa | ctc | aac | acc | cac | aac | cgg | aac | gag | 6894 | |
| Lys | Lys | Gln | Glu | Ile | Asn | Lys | Lys | Leu | Asn | Thr | His | Asn | Arg | Asn | Glu | | |
| 2230 | | | | | | 2235 | | | | | | 2240 | | | 2245 | | |
| cca | gaa | tac | aat | att | ggc | cag | cct | ggg | acg | gaa | atc | ttc | aac | atg | ccc | 6942 | |
| Pro | Glu | Tyr | Asn | Ile | Gly | Gln | Pro | Gly | Thr | Glu | Ile | Phe | Asn | Met | Pro | | |
| | | | 2250 | | | | | | 2255 | | | | | | 2260 | | |
| gcc | atc | act | gga | gca | ggc | ctt | atg | acc | tgt | aga | agc | cag | gcg | gtg | caa | 6990 | |
| Ala | Ile | Thr | Gly | Ala | Gly | Leu | Met | Thr | Cys | Arg | Ser | Gln | Ala | Val | Gln | | |
| | | | 2265 | | | | | | 2270 | | | | | | 2275 | | |
| gaa | cac | gcc | agc | acc | aac | atg | ggg | cta | gag | gcc | att | att | aga | aag | gca | 7038 | |
| Glu | His | Ala | Ser | Thr | Asn | Met | Gly | Leu | Glu | Ala | Ile | Ile | Arg | Lys | Ala | | |
| 2280 | | | | | | 2285 | | | | | | 2290 | | | | | |
| ctc | atg | ggt | aaa | tat | gat | cag | tgg | gaa | gag | ccc | ccg | ccg | ctc | ggc | gcc | 7086 | |
| Leu | Met | Gly | Lys | Tyr | Asp | Gln | Trp | Glu | Glu | Pro | Pro | Pro | Leu | Gly | Ala | | |
| 2295 | | | | | | 2300 | | | | | | 2305 | | | | | |
| aat | gct | ttt | aac | cct | ctg | aat | gcc | agc | gcc | agt | ctg | ccc | gct | gct | gct | 7134 | |
| Asn | Ala | Phe | Asn | Pro | Leu | Asn | Ala | Ser | Ala | Ser | Leu | Pro | Ala | Ala | Ala | | |
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| atg | ccc | ata | acc | act | gct | gac | gga | cgg | agt | gac | cac | gca | ctc | acc | tcg | 7182 | |
| Met | Pro | Ile | Thr | Thr | Ala | Asp | Gly | Arg | Ser | Asp | His | Ala | Leu | Thr | Ser | | |
| | | | 2330 | | | | | | 2335 | | | | | | 2340 | | |
| cca | ggt | gga | ggt | ggg | aaa | gcc | aag | gtc | tct | ggc | aga | cct | agc | agc | cga | 7230 | |
| Pro | Gly | Gly | Gly | Gly | Lys | Ala | Lys | Val | Ser | Gly | Arg | Pro | Ser | Ser | Arg | | |
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| Lys | Ala | Lys | Ser | Pro | Ala | Pro | Gly | Leu | Ala | Ser | Gly | Asp | Arg | Pro | Pro | | |
| 2360 | | | | | | 2365 | | | | | | 2370 | | | | | |
| tct | gtc | tcc | tca | gta | cac | tca | gag | ggg | gac | tgc | aat | cgc | cga | aca | cca | 7326 | |
| Ser | Val | Ser | Ser | Val | His | Ser | Glu | Gly | Asp | Cys | Asn | Arg | Arg | Thr | Pro | | |
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| Leu | Thr | Asn | Arg | Val | Trp | Glu | Asp | Arg | Pro | Ser | Ser | Ala | Gly | Ser | Thr | | |
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| cca | ttc | ccc | tac | aac | cct | ttg | att | | | | | | | | | | |


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Gly Pro His His Ala Trp Asp Glu Glu Pro Lys Pro Leu Leu Cys Ser
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cag tat gag aca ctc tcg gac agc gag tgaccacgga ttggggggga 7565
Gln Tyr Glu Thr Leu Ser Asp Ser Glu
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 Ser His Thr Asp Val Gly Leu Leu Glu Tyr Gln His His Pro Arg Asp
 35 40 45
 Tyr Thr Ser His Leu Ser Pro Gly Ser Ile Ile Gln Pro Gln Arg Arg

| 50 | | | | | 55 | | | | | 60 | | | | | |
|------------|-----|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Arg 65 | Pro | Ser | Leu | Leu | Ser 70 | Glu | Phe | Gln | Pro | Gly 75 | Ser | Glu | Arg | Ser | Gln 80 |
| Glu | Leu | His | Leu | Arg 85 | Pro | Glu | Ser | Arg | Thr 90 | Phe | Leu | Pro | Glu | Leu 95 | Gly |
| Lys | Pro | Asp | Ile 100 | Glu | Phe | Thr | Glu | Ser 105 | Lys | Arg | Pro | Arg | Leu 110 | Glu | Leu |
| Leu | Pro | Asp 115 | Thr | Leu | Leu | Arg | Pro 120 | Ser | Pro | Leu | Leu | Ala 125 | Thr | Gly | Gln |
| Pro 130 | Ser | Gly | Ser | Glu | Asp | Leu 135 | Thr | Lys | Asp | Arg | Ser 140 | Leu | Ala | Gly | Lys |
| Leu 145 | Glu | Pro | Val | Ser | Pro 150 | Pro | Ser | Pro | Pro | His 155 | Ala | Asp | Pro | Glu | Leu 160 |
| Glu | Leu | Ala | Pro | Ser 165 | Arg | Leu | Ser | Lys | Glu 170 | Glu | Leu | Ile | Gln | Asn 175 | Arg |
| Leu | Asp | Arg 180 | Val | Asp | Arg | Glu | Ile | Thr 185 | Met | Val | Glu | Gln | Gln 190 | Ile | Ser |
| Lys | Leu | Lys 195 | Lys | Lys | Gln | Gln | Gln 200 | Leu | Glu | Glu | Glu | Ala 205 | Ala | Lys | Pro |
| Pro 210 | Glu | Pro | Glu | Lys | Pro | Val 215 | Ser | Pro | Pro | Pro | Ile 220 | Glu | Ser | Lys | His |
| Arg 225 | Ser | Leu | Val | Gln | Ile 230 | Ile | Tyr | Asp | Glu | Asn 235 | Arg | Lys | Lys | Ala | Glu 240 |
| Ala | Ala | His | Arg 245 | Ile | Leu | Glu | Gly | Leu | Gly 250 | Pro | Gln | Val | Glu | Leu 255 | Pro |
| Leu | Tyr | Asn | Gln 260 | Pro | Ser | Asp | Thr | Arg 265 | Gln | Tyr | His | Glu | Asn 270 | Ile | Lys |
| Ile | Asn | Gln 275 | Ala | Met | Arg | Lys | Lys 280 | Leu | Ile | Leu | Tyr | Phe 285 | Lys | Arg | Arg |
| Asn 290 | His | Ala | Arg | Lys | Gln | Trp 295 | Glu | Gln | Arg | Phe | Cys 300 | Gln | Arg | Tyr | Asp |
| Gln 305 | Leu | Met | Glu | Ala | Trp 310 | Glu | Lys | Lys | Val | Glu 315 | Arg | Ile | Glu | Asn 320 | Asn |
| Pro | Arg | Arg | Arg | Ala 325 | Lys | Glu | Ser | Lys | Val 330 | Arg | Glu | Tyr | Tyr | Glu 335 | Lys |
| Gln | Phe | Pro | Glu 340 | Ile | Arg | Lys | Gln | Arg 345 | Glu | Leu | Gln | Glu | Arg 350 | Met | Gln |
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| Gln | Ala | Ser | Gly 725 | Asn | Glu | Val | Pro | Arg | Val 730 | Gly | Glu | Cys | Ser | Gly 735 | Pro |
| Ala | Ala | Val | Asn 740 | Asn | Ser | Ser | Asp | Thr 745 | Glu | Ser | Val | Pro | Ser 750 | Pro | Arg |
| Ser | Glu | Ala 755 | Thr | Lys | Asp | Thr | Gly 760 | Pro | Lys | Pro | Thr | Gly 765 | Thr | Glu | Ala |
| Leu 770 | Pro | Ala | Ala | Thr | Gln 775 | Pro | Pro | Val | Pro | Pro | Pro 780 | Glu | Glu | Pro | Ala |
| Ala 785 | Ala | Pro | Ala | Glu 790 | Pro | Ser | Pro | Val | Pro | Asp 795 | Ala | Ser | Gly | Pro | Pro 800 |
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| Gly | Ser | Lys | Ala 900 | Ala | Val | Thr | Lys | Gly 905 | Ser | Ser | Ser | Gly | Ala 910 | Thr | Gln |
| Asp | Ser | Asp 915 | Ser | Ser | Ala | Thr | Cys 920 | Ser | Ala | Asp | Glu | Val 925 | Asp | Glu | Pro |
| Glu 930 | Gly | Gly | Asp | Lys | Gly 935 | Arg | Leu | Leu | Ser | Pro | Arg 940 | Pro | Ser | Leu | Leu |
| Thr 945 | Pro | Ala | Gly | Asp | Pro 950 | Arg | Ala | Ser | Thr | Ser 955 | Pro | Gln | Lys | Pro | Leu 960 |
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| Thr | Lys | Val | His 980 | Glu | Pro | Pro | Arg | Glu 985 | Asp | Thr | Val | Pro | Pro 990 | Lys | Pro |
| Val | Pro | Pro 995 | Val | Pro | Pro | Pro | Thr 1000 | Gln | His | Leu | Gln 1005 | Pro | Glu | Gly | Asp |
| Val 1010 | Ser | Gln | Gln | Ser | Gly 1015 | Gly | Ser | Pro | Arg | Gly 1020 | Lys | Ser | Arg | Ser | Pro |
| Val | Pro | Pro | Ala | Glu | Lys | Glu | Ala | Glu | Lys | Pro | Ala | Phe | Phe | Pro | Ala |

| | | | | | | | | | | | | | | | | | | | | |
|-----|------|-----|-----|------|------|-----|-----|-----|------|-----|------|------|-----|-----|-----|------|--|--|--|--|
| 025 | 1030 | | | | | | | | | | 1035 | | | | | 1040 | | | | |
| Phe | Pro | Thr | Glu | Gly | Gln | Ser | Tyr | Arg | Leu | Ser | Pro | His | Ala | Gly | His | | | | | |
| | | | | 1045 | | | | | 1050 | | | 1055 | | | | | | | | |
| Arg | Leu | Pro | Ser | His | Pro | Pro | Arg | Glu | Val | Ile | Lys | Thr | Ser | Thr | Arg | | | | | |
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| Ala | Asp | Pro | Leu | Phe | Ser | Tyr | Thr | Pro | Pro | Gly | His | Pro | Leu | Pro | Leu | | | | | |
| | | | | 1075 | | | | | 1080 | | | 1085 | | | | | | | | |
| Gly | Leu | His | Asp | Ser | Ala | Arg | Pro | Val | Leu | Pro | Arg | Pro | Pro | Ile | Ser | | | | | |
| | | | | 1090 | | | | | 1095 | | | 1100 | | | | | | | | |
| Asn | Pro | Pro | Pro | Leu | Ile | Ser | Ser | Ala | Lys | His | Pro | Gly | Val | Leu | Glu | | | | | |
| 105 | | | | | 1110 | | | | 1115 | | | 1120 | | | | | | | | |
| Arg | Gln | Leu | Gly | Ala | Ile | Ser | Gln | Gly | Met | Ser | Val | Gln | Leu | Arg | Val | | | | | |
| | | | | 1125 | | | | | 1130 | | | 1135 | | | | | | | | |
| Pro | His | Ser | Glu | His | Ala | Lys | Pro | Met | Gly | Pro | Leu | Thr | Met | Glu | Leu | | | | | |
| | | | | 1140 | | | | | 1145 | | | 1150 | | | | | | | | |
| Pro | Leu | Ala | Val | Asp | Pro | Lys | Lys | Leu | Gly | Thr | Ala | Leu | Ala | Pro | Pro | | | | | |
| | | | | 1155 | | | | | 1160 | | | 1165 | | | | | | | | |
| Pro | Val | Glu | Ala | Ser | Pro | Arg | Ala | Ser | Gln | Tyr | Pro | Gly | Cys | Arg | Arg | | | | | |
| | | | | 1170 | | | | | 1175 | | | 1180 | | | | | | | | |
| Pro | Gln | Leu | Gln | Arg | Leu | Tyr | His | Pro | Arg | Thr | Pro | Ala | Asp | Val | Leu | | | | | |
| | | | | 1185 | | | | | 1190 | | | 1195 | | | | | | | | |
| Tyr | Lys | Gly | Thr | Ile | Ser | Arg | Ile | Val | Gly | Glu | Asp | Ser | Pro | Ser | Arg | | | | | |
| | | | | 1205 | | | | | 1210 | | | 1215 | | | | | | | | |
| Leu | Asp | Arg | Ala | Arg | Glu | Asp | Thr | Leu | Pro | Lys | Gly | His | Val | Ile | Tyr | | | | | |
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| Glu | Gly | Lys | Lys | Gly | His | Val | Leu | Ser | Tyr | Glu | Gly | Gly | Met | Ser | Val | | | | | |
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| Ser | Gln | Cys | Ser | Lys | Glu | Asp | Gly | Arg | Ser | Ser | Ser | Gly | Pro | Pro | His | | | | | |
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| Glu | Thr | Ala | Ala | Pro | Lys | Arg | Thr | Tyr | Asp | Met | Met | Glu | Gly | Arg | Val | | | | | |
| | | | | 1265 | | | | | 1270 | | | 1275 | | | | | | | | |
| Gly | Arg | Thr | Val | Thr | Ser | Ala | Ser | Ile | Glu | Gly | Leu | Met | Gly | Arg | Ala | | | | | |
| | | | | 1285 | | | | | 1290 | | | 1295 | | | | | | | | |
| Ile | Pro | Glu | Gln | His | Ser | Pro | His | Leu | Lys | Glu | Gln | His | His | Ile | Arg | | | | | |
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| Gly | Ser | Ile | Thr | Gln | Gly | Ile | Pro | Arg | Ser | Tyr | Val | Glu | Ala | Gln | Glu | | | | | |
| | | | | 1315 | | | | | 1320 | | | 1325 | | | | | | | | |
| Asp | Tyr | Leu | Arg | Arg | Glu | Ala | Lys | Leu | Leu | Lys | Arg | Glu | Gly | Thr | Pro | | | | | |
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| Pro | Pro | Pro | Pro | Pro | Pro | Arg | Asp | Leu | Thr | Glu | Thr | Tyr | Lys | Pro | Arg | | | | | |
| | | | | 1345 | | | | | 1350 | | | 1355 | | | | | | | | |
| | | | | | | | | | | | | 1360 | | | | | | | | |

| | | | | | | | | | | | | | | | | |
|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--|
| Pro | Leu | Asp | Pro | Leu | Gly | Pro | Leu | Lys | Leu | Lys | Pro | Thr | His | Glu | Gly | |
| | | | | 1365 | | | | | 1370 | | | | | | 1375 | |
| Val | Val | Ala | Thr | Val | Lys | Glu | Ala | Gly | Arg | Ser | Ile | His | Glu | Ile | Pro | |
| | | | 1380 | | | | | 1385 | | | | | 1390 | | | |
| Arg | Glu | Glu | Leu | Arg | Arg | Thr | Pro | Glu | Leu | Pro | Leu | Ala | Pro | Arg | Pro | |
| | | 1395 | | | | | 1400 | | | | | 1405 | | | | |
| Leu | Lys | Glu | Gly | Ser | Ile | Thr | Gln | Gly | Thr | Pro | Leu | Lys | Tyr | Asp | Ser | |
| | 1410 | | | | | 1415 | | | | | 1420 | | | | | |
| Gly | Ala | Pro | Ser | Thr | Gly | Thr | Lys | Lys | His | Asp | Val | Arg | Ser | Ile | Ile | |
| 425 | | | | | 1430 | | | | | 1435 | | | | | 1440 | |
| Gly | Ser | Pro | Gly | Arg | Pro | Phe | Pro | Ala | Leu | His | Pro | Leu | Asp | Ile | Met | |
| | | | | 1445 | | | | | 1450 | | | | | 1455 | | |
| Ala | Asp | Ala | Arg | Ala | Leu | Glu | Arg | Ala | Cys | Tyr | Glu | Glu | Ser | Leu | Lys | |
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| Ser | Arg | Ser | Gly | Thr | Ser | Ser | Gly | Ala | Gly | Gly | Ser | Ile | Thr | Arg | Gly | |
| | | 1475 | | | | | 1480 | | | | | 1485 | | | | |
| Ala | Pro | Val | Val | Val | Pro | Glu | Leu | Gly | Lys | Pro | Arg | Gln | Ser | Pro | Leu | |
| | 1490 | | | | | 1495 | | | | | 1500 | | | | | |
| Thr | Tyr | Glu | Asp | His | Gly | Ala | Pro | Phe | Thr | Ser | His | Leu | Pro | Arg | Gly | |
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| Ser | Pro | Val | Thr | Thr | Arg | Glu | Pro | Thr | Pro | Arg | Leu | Gln | Glu | Gly | Ser | |
| | | | | 1525 | | | | | 1530 | | | | | 1535 | | |
| Leu | Leu | Ser | Ser | Lys | Ala | Ser | Gln | Asp | Arg | Lys | Leu | Thr | Ser | Thr | Pro | |
| | | | 1540 | | | | | 1545 | | | | | 1550 | | | |
| Arg | Glu | Ile | Ala | Lys | Ser | Pro | His | Ser | Thr | Val | Pro | Glu | His | His | Pro | |
| | | 1555 | | | | | 1560 | | | | | 1565 | | | | |
| His | Pro | Ile | Ser | Pro | Tyr | Glu | His | Leu | Leu | Arg | Gly | Val | Thr | Gly | Val | |
| | 1570 | | | | | 1575 | | | | | 1580 | | | | | |
| Asp | Leu | Tyr | Arg | Gly | His | Ile | Pro | Leu | Ala | Phe | Asp | Pro | Thr | Ser | Ile | |
| 585 | | | | | 1590 | | | | | 1595 | | | | | 1600 | |
| Pro | Arg | Gly | Ile | Pro | Leu | Glu | Ala | Ala | Ala | Ala | Ala | Tyr | Tyr | Leu | Pro | |
| | | | | 1605 | | | | | 1610 | | | | | 1615 | | |
| Arg | His | Leu | Ala | Pro | Ser | Pro | Thr | Tyr | Pro | His | Leu | Tyr | Pro | Pro | Tyr | |
| | | | 1620 | | | | | 1625 | | | | | 1630 | | | |
| Leu | Ile | Arg | Gly | Tyr | Pro | Asp | Thr | Ala | Ala | Leu | Glu | Asn | Arg | Gln | Thr | |
| | | 1635 | | | | | 1640 | | | | | 1645 | | | | |
| Ile | Ile | Asn | Asp | Tyr | Ile | Thr | Ser | Gln | Gln | Met | His | His | Asn | Ala | Ala | |
| | 1650 | | | | | 1655 | | | | | 1660 | | | | | |
| Ser | Ala | Met | Ala | Gln | Arg | Ala | Asp | Met | Leu | Arg | Gly | Leu | Ser | Pro | Arg | |
| 665 | | | | | 1670 | | | | | 1675 | | | | | 1680 | |

Glu Ser Ser Leu Ala Leu Asn Tyr Ser Ala Gly Pro Arg Gly Ile Ile
1685 1690 1695

Asp Leu Ser Gln Val Pro His Leu Pro Val Leu Val Pro Pro Thr Pro
1700 1705 1710

Gly Thr Pro Ala Thr Ala Ile Asp Arg Leu Ala Tyr Leu Pro Thr Ala
1715 1720 1725

Pro Pro Pro Phe Ser Ser Arg His Ser Ser Ser Pro Leu Ser Pro Gly
1730 1735 1740

Gly Pro Thr His Leu Ala Lys Pro Thr Ala Thr Ser Ser Ser Glu Arg
745 1750 1755 1760

Glu Arg Glu Arg Glu Arg Glu Arg Asp Lys Ser Ile Leu Thr Ser Thr
1765 1770 1775

Thr Thr Val Glu His Ala Pro Ile Trp Arg Pro Gly Thr Glu Gln Ser
1780 1785 1790

Ser Gly Ala Gly Gly Ser Ser Arg Pro Ala Ser His Thr His Gln His
1795 1800 1805

Ser Pro Ile Ser Pro Arg Thr Gln Asp Ala Leu Gln Gln Arg Pro Ser
1810 1815 1820

Val Leu His Asn Thr Ser Met Lys Gly Val Val Thr Ser Val Glu Pro
825 1830 1835 1840

Gly Thr Pro Thr Val Leu Arg Ser Thr Ser Thr Ser Ser Pro Val Arg
1845 1850 1855

Pro Ala Ala Thr Phe Pro Pro Ala Thr His Cys Pro Leu Gly Gly Thr
1860 1865 1870

Leu Glu Gly Val Tyr Pro Thr Leu Met Glu Pro Val Leu Leu Pro Lys
1875 1880 1885

Glu Thr Ser Arg Val Ala Arg Pro Glu Arg Pro Arg Val Asp Gly Gly
1890 1895 1900

His Ala Phe Leu Thr Lys Pro Pro Ala Arg Glu Pro Ala Ser Ser Pro
905 1910 1915 1920

Ser Lys Ser Ser Glu Pro Arg Ser Leu Ala Pro Pro Ser Ser Ser His
1925 1930 1935

Thr Ala Ile Ala Arg Thr Pro Ala Lys Ser Leu Ala Pro His His Ala
1940 1945 1950

Ser Pro Asp Pro Pro Gly Pro Thr Ser Ala Ser Asp Leu His Arg Glu
1955 1960 1965

Lys Thr Gln Ser Lys Pro Phe Ser Ile Gln Glu Leu Glu Leu Arg Ser
1970 1975 1980

Leu Gly Tyr His Ser Gly Ala Gly Tyr Ser Pro Asp Gly Val Glu Pro
985 1990 1995 2000

Ile Ser Pro Val Ser Ser Pro Ser Leu Thr His Asp Lys Gly Leu Ser

00046401032204

| 2005 | | | | | 2010 | | | | | 2015 | | | | | | | | | |
|------|-----|-----|-----|-----|------|-----|-----|-----|-----|------|-----|-----|-----|-----|------|--|--|--|--|
| Lys | Pro | Leu | Glu | Glu | Leu | Glu | Lys | Ser | His | Leu | Glu | Gly | Glu | Leu | Arg | | | | |
| 2020 | | | | | 2025 | | | | | 2030 | | | | | | | | | |
| His | Lys | Gln | Pro | Gly | Pro | Met | Lys | Leu | Ser | Ala | Glu | Ala | Ala | His | Leu | | | | |
| 2035 | | | | | 2040 | | | | | 2045 | | | | | | | | | |
| Pro | His | Leu | Arg | Pro | Leu | Pro | Glu | Ser | Gln | Pro | Ser | Ser | Ser | Pro | Leu | | | | |
| 2050 | | | | | 2055 | | | | | 2060 | | | | | | | | | |
| Leu | Gln | Thr | Ala | Pro | Gly | Ile | Lys | Gly | His | Gln | Arg | Val | Val | Thr | Leu | | | | |
| 065 | | | | | 2070 | | | | | 2075 | | | | | 2080 | | | | |
| Ala | Gln | His | Ile | Ser | Glu | Val | Ile | Thr | Gln | Asp | Tyr | Thr | Arg | His | His | | | | |
| 2085 | | | | | 2090 | | | | | 2095 | | | | | | | | | |
| Pro | Gln | Gln | Leu | Ser | Gly | Pro | Leu | Pro | Ala | Pro | Leu | Tyr | Ser | Phe | Pro | | | | |
| 2100 | | | | | 2105 | | | | | 2110 | | | | | | | | | |
| Gly | Ala | Ser | Cys | Pro | Val | Leu | Asp | Leu | Arg | Arg | Pro | Pro | Ser | Asp | Leu | | | | |
| 2115 | | | | | 2120 | | | | | 2125 | | | | | | | | | |
| Tyr | Leu | Pro | Pro | Pro | Asp | His | Gly | Thr | Pro | Ala | Arg | Gly | Ser | Pro | His | | | | |
| 2130 | | | | | 2135 | | | | | 2140 | | | | | | | | | |
| Ser | Glu | Gly | Gly | Lys | Arg | Ser | Pro | Glu | Pro | Ser | Lys | Thr | Ser | Val | Leu | | | | |
| 145 | | | | | 2150 | | | | | 2155 | | | | | 2160 | | | | |
| Gly | Ser | Ser | Glu | Asp | Ala | Ile | Glu | Pro | Val | Ser | Pro | Pro | Glu | Gly | Met | | | | |
| 2165 | | | | | 2170 | | | | | 2175 | | | | | | | | | |
| Thr | Glu | Pro | Gly | His | Ala | Arg | Ser | Ala | Val | Tyr | Pro | Leu | Leu | Tyr | Arg | | | | |
| 2180 | | | | | 2185 | | | | | 2190 | | | | | | | | | |
| Asp | Gly | Glu | Gln | Gly | Glu | Pro | Arg | Met | Gly | Ser | Lys | Ser | Pro | Gly | Asn | | | | |
| 2195 | | | | | 2200 | | | | | 2205 | | | | | | | | | |
| Thr | Ser | Gln | Pro | Pro | Ala | Phe | Phe | Ser | Lys | Leu | Thr | Glu | Ser | Asn | Ser | | | | |
| 2210 | | | | | 2215 | | | | | 2220 | | | | | | | | | |
| Ala | Met | Val | Lys | Ser | Lys | Lys | Gln | Glu | Ile | Asn | Lys | Lys | Leu | Asn | Thr | | | | |
| 225 | | | | | 2230 | | | | | 2235 | | | | | 2240 | | | | |
| His | Asn | Arg | Asn | Glu | Pro | Glu | Tyr | Asn | Ile | Gly | Gln | Pro | Gly | Thr | Glu | | | | |
| 2245 | | | | | 2250 | | | | | 2255 | | | | | | | | | |
| Ile | Phe | Asn | Met | Pro | Ala | Ile | Thr | Gly | Ala | Gly | Leu | Met | Thr | Cys | Arg | | | | |
| 2260 | | | | | 2265 | | | | | 2270 | | | | | | | | | |
| Ser | Gln | Ala | Val | Gln | Glu | His | Ala | Ser | Thr | Asn | Met | Gly | Leu | Glu | Ala | | | | |
| 2275 | | | | | 2280 | | | | | 2285 | | | | | | | | | |
| Ile | Ile | Arg | Lys | Ala | Leu | Met | Gly | Lys | Tyr | Asp | Gln | Trp | Glu | Glu | Pro | | | | |
| 2290 | | | | | 2295 | | | | | 2300 | | | | | | | | | |
| Pro | Pro | Leu | Gly | Ala | Asn | Ala | Phe | Asn | Pro | Leu | Asn | Ala | Ser | Ala | Ser | | | | |
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| Leu | Pro | Ala | Ala | Ala | Met | Pro | Ile | Thr | Thr | Ala | Asp | Gly | Arg | Ser | Asp | | | | |
| 2325 | | | | | 2330 | | | | | 2335 | | | | | | | | | |

2025 2030 2035 2040 2045 2050 2055 2060 2065 2070 2075 2080 2085 2090 2095 2100 2105 2110 2115 2120 2125 2130 2135 2140 2145 2150 2155 2160 2165 2170 2175 2180 2185 2190 2195 2200 2205 2210 2215 2220 2225 2230 2235 2240 2245 2250 2255 2260 2265 2270 2275 2280 2285 2290 2295 2300 2305 2310 2315 2320 2325 2330 2335

His Ala Leu Thr Ser Pro Gly Gly Gly Gly Lys Ala Lys Val Ser Gly
2340 2345 2350

Arg Pro Ser Ser Arg Lys Ala Lys Ser Pro Ala Pro Gly Leu Ala Ser
2355 2360 2365

Gly Asp Arg Pro Pro Ser Val Ser Ser Val His Ser Glu Gly Asp Cys
2370 2375 2380

Asn Arg Arg Thr Pro Leu Thr Asn Arg Val Trp Glu Asp Arg Pro Ser
385 2390 2395 2400

Ser Ala Gly Ser Thr Pro Phe Pro Tyr Asn Pro Leu Ile Met Arg Leu
2405 2410 2415

Gln Ala Gly Val Met Ala Ser Pro Pro Pro Gly Leu Ala Ala Gly
2420 2425 2430

Ser Gly Pro Leu Ala Gly Pro His His Ala Trp Asp Glu Glu Pro Lys
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Pro Leu Leu Cys Ser Gln Tyr Glu Thr Leu Ser Asp Ser Glu
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| Met Ser Gly Ser Thr Gln Pro Val Ala Gln Thr Trp Arg Ala Ala Glu | |
| 1 5 10 15 | |
| ccc cgc tac cca ccc cat ggc atc tcc tac ccg gtg cag ata gcc cgg | 96 |
| Pro Arg Tyr Pro Pro His Gly Ile Ser Tyr Pro Val Gln Ile Ala Arg | |
| 20 25 30 | |
| tcc cac acg gac gtg ggg ctg ctt gag tac caa cac cac ccc cgt gac | 144 |
| Ser His Thr Asp Val Gly Leu Leu Glu Tyr Gln His His Pro Arg Asp | |
| 35 40 45 | |
| tac acc tca cac ctg tca ccc ggt tcc atc atc cag cca cag agg agg | 192 |
| Tyr Thr Ser His Leu Ser Pro Gly Ser Ile Ile Gln Pro Gln Arg Arg | |
| 50 55 60 | |
| cgg ccc tca ctg ctg tca gag ttc cag cct ggg agt gaa cgg tct cag | 240 |
| Arg Pro Ser Leu Leu Ser Glu Phe Gln Pro Gly Ser Glu Arg Ser Gln | |
| 65 70 75 80 | |
| gag ctc cac ctg cgc cct gag tcc cgc acg ttc ctg cct gag ctg ggc | 288 |
| Glu Leu His Leu Arg Pro Glu Ser Arg Thr Phe Leu Pro Glu Leu Gly | |
| 85 90 95 | |
| aag ccc gac ata gaa ttc acc gag agc aag cgc ccc cgc ctg gag cta | 336 |

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[illegible]

| | | | | | | | | | | | | | | | | | | | | | | |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------|--|--|--|--|-----|--|
| 340 | | | | | | | 345 | | | | | | | 350 | | | | | | | | |
| agc Ser | agg Arg | gtg Val | ggc Gly | cag Gln | cgt Arg | ggc Gly | agt Ser | ggg Gly | ctc Leu | tcc Ser | atg Met | tcg Ser | gct Ala | gcc Ala | cgc Arg | 1104 | | | | | | |
| 355 | | | | | | | 360 | | | | | | | 365 | | | | | | | | |
| agt Ser | gag Glu | cat His | gag Glu | gtt Val | tct Ser | gag Glu | atc Ile | att Ile | gat Asp | ggc Gly | ttg Leu | tct Ser | gag Glu | cag Gln | gag Glu | 1152 | | | | | | |
| 370 | | | | | | | 375 | | | | | | | 380 | | | | | | | | |
| aac Asn | ctg Leu | gag Glu | aag Lys | cag Gln | atg Met | cgc Arg | cag Gln | ctg Leu | gcc Ala | gtg Val | atc Ile | cgc Arg | cat His | gtt Val | gta Val | 1200 | | | | | | |
| 385 | | | | | | | 390 | | | | | | | 395 | | | | | | | 400 | |
| cga Arg | cgc Arg | gac Asp | cag Gln | cag Gln | agg Arg | atc Ile | aag Lys | ttc Phe | atc Ile | aac Asn | atg Met | aat Asn | gga Gly | ctc Leu | atg Met | 1248 | | | | | | |
| 405 | | | | | | | 410 | | | | | | | 415 | | | | | | | | |
| gat Asp | gac Asp | ccc Pro | atg Met | aag Lys | gtc Val | tac Tyr | aag Lys | gac Asp | cgt Arg | cag Gln | gtt Val | acc Thr | aac Asn | atg Met | tgg Trp | 1296 | | | | | | |
| 420 | | | | | | | 425 | | | | | | | 430 | | | | | | | | |
| agc Ser | gag Glu | cag Gln | gag Glu | agg Arg | gac Asp | acc Thr | ttc Phe | cgt Arg | gag Glu | aag Lys | ttt Phe | atg Met | cag Gln | cac His | cct Pro | 1344 | | | | | | |
| 435 | | | | | | | 440 | | | | | | | 445 | | | | | | | | |
| aag Lys | aac Asn | ttt Phe | ggc Gly | ctg Leu | att Ile | gcc Ala | tca Ser | ttc Phe | ctg Leu | gag Glu | aga Arg | aag Lys | acg Thr | gtc Val | gct Ala | 1392 | | | | | | |
| 450 | | | | | | | 455 | | | | | | | 460 | | | | | | | | |
| gag Glu | tgt Cys | gtc Val | ctc Leu | tat Tyr | tac Tyr | tac Tyr | ctg Leu | acc Thr | aag Lys | aag Lys | aat Asn | gaa Glu | aat Asn | tac Tyr | aag Lys | 1440 | | | | | | |
| 465 | | | | | | | 470 | | | | | | | 475 | | | | | | | 480 | |
| agc Ser | ttg Leu | gtg Val | agg Arg | cgg Arg | agc Ser | tat Tyr | cgg Arg | cgc Arg | cgt Arg | ggc Gly | aag Lys | agc Ser | cag Gln | cag Gln | cag Gln | 1488 | | | | | | |
| 485 | | | | | | | 490 | | | | | | | 495 | | | | | | | | |
| cag Gln | cag Gln | cag Gln | caa Gln | caa Gln | cag Gln | cag Gln | cag Gln | cag Gln | cag Gln | cag Gln | atg Met | gca Ala | cgg Arg | agc Ser | agc Ser | 1536 | | | | | | |
| 500 | | | | | | | 505 | | | | | | | 510 | | | | | | | | |
| cag Gln | gag Glu | gag Glu | aag Lys | gag Glu | gag Glu | aag Lys | gag Glu | aag Lys | gag Glu | aag Lys | gag Glu | gcc Ala | gac Asp | aag Lys | gag Glu | 1584 | | | | | | |
| 515 | | | | | | | 520 | | | | | | | 525 | | | | | | | | |
| gaa Glu | gag Glu | aag Lys | cag Gln | gat Asp | gcg Ala | gag Glu | aac Asn | gag Glu | aag Lys | gaa Glu | gaa Glu | ctc Leu | agc Ser | aag Lys | gag Glu | 1632 | | | | | | |
| 530 | | | | | | | 535 | | | | | | | 540 | | | | | | | | |
| aag Lys | aca Thr | gac Asp | gac Asp | act Thr | tct Ser | ggc Gly | gag Glu | gac Asp | aac Asn | gat Asp | gag Glu | aaa Lys | gag Glu | gcc Ala | gtg Val | 1680 | | | | | | |
| 545 | | | | | | | 550 | | | | | | | 555 | | | | | | | 560 | |
| gcc Ala | tcc Ser | aaa Lys | ggc Gly | cgc Arg | aaa Lys | act Thr | gcc Ala | aac Asn | agc Ser | caa Gln | ggc Gly | cgc Arg | cgc Arg | aaa Lys | ggc Gly | 1728 | | | | | | |
| 565 | | | | | | | 570 | | | | | | | 575 | | | | | | | | |
| cgt Arg | atc Ile | acg Thr | cgc Arg | tcc Ser | atg Met | gcc Ala | aac Asn | gag Glu | gcc Ala | aac Asn | cat His | gag Glu | gag Glu | aca Thr | gcc Ala | 1776 | | | | | | |
| 580 | | | | | | | 585 | | | | | | | 590 | | | | | | | | |

SECRET

| | | | | | | | | | | | | | | | | |
|--------------------|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------------|--------------------|--------------------|--------------------|-------------------|--------------------|-------------------|--------------------|------|
| gcc Ala | aag Lys | gag Glu 835 | cag Gln | aag Lys | tct Ser | gag Glu | gcc Ala 840 | gag Glu | gag Glu | atc Ile | gat Asp | gtg Val 845 | gga Gly | aag Lys | cca Pro | 2544 |
| gag Glu 850 | gag Glu | ccc Pro | gag Glu | gcc Ala | tct Ser | gag Glu 855 | gag Glu | ccc Pro | ccg Pro | gag Glu 860 | agt Ser | gta Val | aag Lys | agt Ser | gac Asp | 2592 |
| cac His 865 | aag Lys | gag Glu | gag Glu | acc Thr | gag Glu 870 | gaa Glu | gag Glu | cct Pro | gaa Glu | gac Asp 875 | aaa Lys | gcc Ala | aag Lys | ggc Gly | aca Thr 880 | 2640 |
| gag Glu | gcc Ala | att Ile | gaa Glu | act Thr 885 | gtg Val | tct Ser | gag Glu | gca Ala | cca Pro 890 | ctt Leu | aag Lys | gtg Val | gag Glu | gag Glu 895 | gct Ala | 2688 |
| ggc Gly | agc Ser | aag Lys 900 | gca Ala | gct Ala | gtg Val | acc Thr | aag Lys | ggc Gly 905 | tcc Ser | agc Ser | tca Ser | ggc Gly 910 | gcc Ala | acc Thr | cag Gln | 2736 |
| gac Asp | agt Ser 915 | gac Asp | tcc Ser | agt Ser | gcc Ala | acc Thr | tgc Cys 920 | agt Ser | gcc Ala | gat Asp | gag Glu 925 | gtg Val | gac Asp | gaa Glu | ccc Pro | 2784 |
| gaa Glu 930 | gga Gly | ggc Gly | gac Asp | aag Lys | ggc Gly | agg Arg 935 | ctg Leu | ctg Leu | tca Ser | cca Pro 940 | agg Arg | ccc Pro | agc Ser | ctc Leu | ctc Leu | 2832 |
| acc Thr 945 | ccg Pro | gct Ala | gga Gly | gat Asp | ccc Pro 950 | cgg Arg | gcc Ala | agt Ser | acc Thr | tcc Ser 955 | ccc Pro | cag Gln | aag Lys | ccg Pro | ctg Leu 960 | 2880 |
| gac Asp | ctg Leu | aag Lys | cag Gln 965 | ctg Leu | aag Lys | cag Gln | cga Arg | gca Ala 970 | gcc Ala | gcc Ala | atc Ile | ccc Pro | cct Pro | atc Ile 975 | gtc Val | 2928 |
| acc Thr | aag Lys | gtc Val 980 | cat His | gag Glu | ccc Pro | ccc Pro | cgg Arg | gag Glu 985 | gac Asp | aca Thr | gta Val | ccc Pro 990 | cca Pro | aag Lys | cca Pro | 2976 |
| gtt Val | ccc Pro 995 | cct Pro | gtg Val | cct Pro | cca Pro | ccc Pro 1000 | acg Thr | cag Gln | cac His | cta Leu | cag Gln 1005 | cca Pro | gag Glu | ggt Gly | gac Asp | 3024 |
| gtg Val 1010 | tct Ser | cag Gln | cag Gln | tcc Ser | gga Gly 1015 | gga Gly | agt Ser | cca Pro | cgt Arg | ggc Gly 1020 | aag Lys | tcc Ser | cgc Arg | agc Ser | cca Pro | 3072 |
| gtg Val 1025 | cct Pro | cct Pro | gcc Ala | gag Glu 1030 | aaa Lys | gag Glu | gca Ala | gag Glu | aaa Lys 1035 | ccc Pro | gca Ala | ttc Phe | ttt Phe | ccg Pro | gct Ala 1040 | 3120 |
| ttc Phe | cca Pro | act Thr | gag Glu 1045 | ggc Gly | caa Gln | agc Ser | tac Tyr | cga Arg | ctg Leu 1050 | agc Ser | ccc Pro | cac His | gct Ala 1055 | ggt Gly | cat His | 3168 |
| cgg Arg | ctg Leu | cct Pro 1060 | tcc Ser | cat His | cct Pro | cca Pro | cgg Arg 1065 | gag Glu | gtg Val | atc Ile | aag Lys 1070 | act Thr | tcc Ser | aca Thr | cgc Arg | 3216 |
| gct Val | gac Val | cct Val | ctc Val | ttc Val | tcc Val | tac Val | aca Val | ccc Val | ccc Val | ggc Val | cac Val | ccg Val | ctg Val | cct Val | ctg Val | 3264 |

[illegible]

| 1315 | 1320 | 1325 | |
|---|------|------|------|
| gac tac tta cgg cgg gag gcc aag ctc ttg aag cga gaa ggg aca cca | | | 4032 |
| Asp Tyr Leu Arg Arg Glu Ala Lys Leu Leu Lys Arg Glu Gly Thr Pro | | | |
| 1330 | 1335 | 1340 | |
| cct ccc cca cca cca cct cgg gac ctg act gag acc tac aag ccc cgg | | | 4080 |
| Pro Pro Pro Pro Pro Pro Arg Asp Leu Thr Glu Thr Tyr Lys Pro Arg | | | |
| 1345 | 1350 | 1355 | 1360 |
| ccc ctg gac cct ctg ggt ccc ctg aag ctg aag ccg act cac gag ggt | | | 4128 |
| Pro Leu Asp Pro Leu Gly Pro Leu Lys Leu Lys Pro Thr His Glu Gly | | | |
| 1365 | 1370 | 1375 | |
| gtg gta gca act gtg aag gag gcg ggc cgc tct atc cat gag atc ccg | | | 4176 |
| Val Val Ala Thr Val Lys Glu Ala Gly Arg Ser Ile His Glu Ile Pro | | | |
| 1380 | 1385 | 1390 | |
| aga gag gag ctg cgc cgc aca cct gag cta ccc ctg gca cca cgg cct | | | 4224 |
| Arg Glu Glu Leu Arg Arg Thr Pro Glu Leu Pro Leu Ala Pro Arg Pro | | | |
| 1395 | 1400 | 1405 | |
| ctg aag gag ggt tcc atc acc cag ggc acc cca ctc aag tac gac tct | | | 4272 |
| Leu Lys Glu Gly Ser Ile Thr Gln Gly Thr Pro Leu Lys Tyr Asp Ser | | | |
| 1410 | 1415 | 1420 | |
| ggg gca ccc tcc act ggc acc aag aaa cac gac gtg cgc tcc atc atc | | | 4320 |
| Gly Ala Pro Ser Thr Gly Thr Lys Lys His Asp Val Arg Ser Ile Ile | | | |
| 1425 | 1430 | 1435 | 1440 |
| ggc agc ccc ggc cgg cct ttc cct gcc ctg cac ccg ctg gac ata atg | | | 4368 |
| Gly Ser Pro Gly Arg Pro Phe Pro Ala Leu His Pro Leu Asp Ile Met | | | |
| 1445 | 1450 | 1455 | |
| gct gac gcc cgg gca ctg gag cgt gcc tgc tat gaa gag agt ctg aag | | | 4416 |
| Ala Asp Ala Arg Ala Leu Glu Arg Ala Cys Tyr Glu Glu Ser Leu Lys | | | |
| 1460 | 1465 | 1470 | |
| agc cgg tca ggg acc agc agt ggt gca ggg ggc tcc atc aca cgt ggg | | | 4464 |
| Ser Arg Ser Gly Thr Ser Ser Gly Ala Gly Gly Ser Ile Thr Arg Gly | | | |
| 1475 | 1480 | 1485 | |
| gct cca gtc gtc gtg cct gaa ctg ggc aag cca cgg caa agc cca ctg | | | 4512 |
| Ala Pro Val Val Val Pro Glu Leu Gly Lys Pro Arg Gln Ser Pro Leu | | | |
| 1490 | 1495 | 1500 | |
| act tac gaa gac cac ggg gca ccc ttc acc agt cac ctg cca cgt ggc | | | 4560 |
| Thr Tyr Glu Asp His Gly Ala Pro Phe Thr Ser His Leu Pro Arg Gly | | | |
| 1505 | 1510 | 1515 | 1520 |
| tcc cct gtg acc acg agg gag ccc acg cca cgc ctt cag gaa ggc agc | | | 4608 |
| Ser Pro Val Thr Thr Arg Glu Pro Thr Pro Arg Leu Gln Glu Gly Ser | | | |
| 1525 | 1530 | 1535 | |
| ctc cta tcc agc aag gcg tcc cag gac cgg aag ctg aca tct aca ccc | | | 4656 |
| Leu Leu Ser Ser Lys Ala Ser Gln Asp Arg Lys Leu Thr Ser Thr Pro | | | |
| 1540 | 1545 | 1550 | |
| cgg gag atc gcc aag tcc cca cac agc act gtg ccc gag cac cac cct | | | 4704 |
| Arg Glu Ile Ala Lys Ser Pro His Ser Thr Val Pro Glu His His Pro | | | |
| 1555 | 1560 | 1565 | |

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| | |
|---|------|
| cac ccc atc tcc ccc tat gag cac ttg ctc cgg ggc gtg act ggt gtg | 4752 |
| His Pro Ile Ser Pro Tyr Glu His Leu Leu Arg Gly Val Thr Gly Val | |
| 1570 1575 1580 | |
| gac ctg tac cgt ggt cac atc cca ttg gcc ttt gac ccc acc tcc ata | 4800 |
| Asp Leu Tyr Arg Gly His Ile Pro Leu Ala Phe Asp Pro Thr Ser Ile | |
| 1585 1590 1595 1600 | |
| ccc cga ggg atc cct ctg gaa gca gca gcc gca gcc tac tac ctg ccc | 4848 |
| Pro Arg Gly Ile Pro Leu Glu Ala Ala Ala Ala Tyr Tyr Leu Pro | |
| 1605 1610 1615 | |
| cgg cac ttg gcc ccc agc ccc acc tac cca cac ctg tac cca cct tac | 4896 |
| Arg His Leu Ala Pro Ser Pro Thr Tyr Pro His Leu Tyr Pro Pro Tyr | |
| 1620 1625 1630 | |
| ctc atc cgc ggc tac cct gac acg gcg gcc ctg gag aac cgc cag acc | 4944 |
| Leu Ile Arg Gly Tyr Pro Asp Thr Ala Ala Leu Glu Asn Arg Gln Thr | |
| 1635 1640 1645 | |
| atc atc aat gac tac atc acc tcg cag cag atg cac cac aac gct gcc | 4992 |
| Ile Ile Asn Asp Tyr Ile Thr Ser Gln Gln Met His His Asn Ala Ala | |
| 1650 1655 1660 | |
| tcc gcc atg gcc cag cgt gct gac atg ctg agg ggt ctg tca ccg cga | 5040 |
| Ser Ala Met Ala Gln Arg Ala Asp Met Leu Arg Gly Leu Ser Pro Arg | |
| 1665 1670 1675 1680 | |
| gag tcc tcg ctg gcc ctc aat tat tcc gct ggc cca aga ggc att atc | 5088 |
| Glu Ser Ser Leu Ala Leu Asn Tyr Ser Ala Gly Pro Arg Gly Ile Ile | |
| 1685 1690 1695 | |
| gac ctg tcc caa gtg cca cac ctg ccc gtg ctg gtg cca cca acg cca | 5136 |
| Asp Leu Ser Gln Val Pro His Leu Pro Val Leu Val Pro Pro Thr Pro | |
| 1700 1705 1710 | |
| ggc acc cct gcc acc gcc atc gac cgc ctt gcc tac ctc ccc act gcg | 5184 |
| Gly Thr Pro Ala Thr Ala Ile Asp Arg Leu Ala Tyr Leu Pro Thr Ala | |
| 1715 1720 1725 | |
| ccc cca ccc ttc agc agc cgc cac agt agc tca ccg ctg tcc cca gga | 5232 |
| Pro Pro Pro Phe Ser Ser Arg His Ser Ser Ser Pro Leu Ser Pro Gly | |
| 1730 1735 1740 | |
| ggc ccc act cac cta gct aaa cca act gcc aca tct tca tcg gag cgg | 5280 |
| Gly Pro Thr His Leu Ala Lys Pro Thr Ala Thr Ser Ser Ser Glu Arg | |
| 1745 1750 1755 1760 | |
| gaa cgg gaa cgt gag cgg gaa cga gac aag tcc atc ctc acg tct acc | 5328 |
| Glu Arg Glu Arg Glu Arg Glu Arg Asp Lys Ser Ile Leu Thr Ser Thr | |
| 1765 1770 1775 | |
| act aca gtg gag cat gca ccc atc tgg aga cct ggt acg gag cag agc | 5376 |
| Thr Thr Val Glu His Ala Pro Ile Trp Arg Pro Gly Thr Glu Gln Ser | |
| 1780 1785 1790 | |
| agc ggg gct ggg ggc agc agc cgc ccc gcc tcc cac acc cac cag cac | 5424 |
| Ser Gly Ala Gly Gly Ser Ser Arg Pro Ala Ser His Thr His Gln His | |
| 1795 1800 1805 | |

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| | | | | | | | | | | | | | | | | |
|------|------|------|------|------|------|------|-------|------|------|------|------|------|------|------|------|------|
| tcc | ccc | atc | tcc | ccc | cgg | acc | cag | gac | gcc | ttg | cag | cag | agg | ccc | agt | 5472 |
| Ser | Pro | Ile | Ser | Pro | Arg | Thr | Gln | Asp | Ala | Leu | Gln | Gln | Arg | Pro | Ser | |
| 1810 | | | | | | 1815 | | | | 1820 | | | | | | |
| gtg | ctg | cac | aac | acg | agc | atg | aag | ggc | gtg | gtc | acc | tcc | gtg | gaa | ccc | 5520 |
| Val | Leu | His | Asn | Thr | Ser | Met | Lys | Gly | Val | Val | Thr | Ser | Val | Glu | Pro | |
| 1825 | | | | | 1830 | | | | | 1835 | | | | | 1840 | |
| ggc | acg | ccc | acg | gtc | ctg | agg | tcc | acc | tcc | acc | tct | tcg | cct | gtc | cgc | 5568 |
| Gly | Thr | Pro | Thr | Val | Leu | Arg | Ser | Thr | Ser | Thr | Ser | Ser | Pro | Val | Arg | |
| | | | | 1845 | | | | | 1850 | | | | | 1855 | | |
| cca | gct | gcc | aca | ttc | cca | cct | gcc | acc | cac | tgc | cca | ctt | ggt | ggc | acc | 5616 |
| Pro | Ala | Ala | Thr | Phe | Pro | Pro | Ala | Thr | His | Cys | Pro | Leu | Gly | Gly | Thr | |
| | | | 1860 | | | | | 1865 | | | | | 1870 | | | |
| ctt | gaa | ggg | gtc | tac | cct | acc | ctc | atg | gag | ccc | gtc | ctg | tta | ccc | aag | 5664 |
| Leu | Glu | Gly | Val | Tyr | Pro | Thr | Leu | Met | Glu | Pro | Val | Leu | Leu | Pro | Lys | |
| | 1875 | | | | | | 1880 | | | | | 1885 | | | | |
| gag | acc | tct | cgg | gtc | gcc | cgg | ccc | gag | cgg | ccc | cgt | gtg | gac | ggt | ggc | 5712 |
| Glu | Thr | Ser | Arg | Val | Ala | Arg | Pro | Glu | Arg | Pro | Arg | Val | Asp | Gly | Gly | |
| | 1890 | | | | | 1895 | | | | | 1900 | | | | | |
| cat | gcc | ttc | ctc | acc | aaa | ccc | ccg | gcc | cgg | gag | ccc | gcc | tcc | tca | ccc | 5760 |
| His | Ala | Phe | Leu | Thr | Lys | Pro | Pro | Ala | Arg | Glu | Pro | Ala | Ser | Ser | Pro | |
| 1905 | | | | | 1910 | | | | | 1915 | | | | | 1920 | |
| agc | aag | agc | tcc | gag | ccc | cga | tcc | cta | gca | ccc | ccc | agc | tcc | agc | cac | 5808 |
| Ser | Lys | Ser | Ser | Glu | Pro | Arg | Ser | Leu | Ala | Pro | Pro | Ser | Ser | Ser | His | |
| | | | | 1925 | | | | | 1930 | | | | 1935 | | | |
| aca | gcc | atc | gcc | cgc | acc | cca | gca | aag | agc | ctt | gca | ccc | cac | cat | gcc | 5856 |
| Thr | Ala | Ile | Ala | Arg | Thr | Pro | Ala | Lys | Ser | Leu | Ala | Pro | His | His | Ala | |
| | | 1940 | | | | | | 1945 | | | | | 1950 | | | |
| agt | ccg | gac | ccg | ccg | ggg | ccc | acc | tcg | gcc | tca | gat | ctg | cac | cga | gaa | 5904 |
| Ser | Pro | Asp | Pro | Pro | Gly | Pro | Thr | Ser | Ala | Ser | Asp | Leu | His | Arg | Glu | |
| | | 1955 | | | | | 1960 | | | | | 1965 | | | | |
| aag | act | caa | agt | aaa | ccc | ttt | tcc | atc | cag | gaa | ttg | gaa | ctc | cgt | tct | 5952 |
| Lys | Thr | Gln | Ser | Lys | Pro | Phe | Ser | Ile | Gln | Glu | Leu | Glu | Leu | Arg | Ser | |
| | 1970 | | | | | 1975 | | | | | 1980 | | | | | |
| ctg | ggt | tac | cac | agt | gga | gct | ggc | tac | agc | ccc | gat | ggg | gtg | gag | ccc | 6000 |
| Leu | Gly | Tyr | His | Ser | Gly | Ala | Gly | Tyr | Ser | Pro | Asp | Gly | Val | Glu | Pro | |
| 1985 | | | | | 1990 | | | | | 1995 | | | | | 2000 | |
| atc | agc | ccg | gtg | agc | tcc | ccc | agc | ctg | acc | cac | gac | aag | ggg | ctc | tcc | 6048 |
| Ile | Ser | Pro | Val | Ser | Ser | Pro | Ser | Leu | Thr | His | Asp | Lys | Gly | Leu | Ser | |
| | | | | 2005 | | | | | 2010 | | | | | 2015 | | |
| aaa | cct | ctg | gaa | gag | cta | gag | aag</ | | | | | | | | | |



| | | | | | | | | | | | | | | | | |
|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|------|
| ctc Leu 2065 | cag Gln 2065 | act Thr 2065 | gcc Ala 2065 | cca Pro 2070 | ggc Gly 2070 | atc Ile 2070 | aaa Lys 2070 | ggg Gly 2075 | cac His 2075 | cag Gln 2075 | agg Arg 2075 | gtg Val 2075 | gtc Val 2080 | acc Thr 2080 | ctg Leu 2080 | 6240 |
| gct Ala 2085 | cag Gln 2085 | cac His 2085 | atc Ile 2085 | agc Ser 2085 | gag Glu 2090 | gtc Val 2090 | att Ile 2090 | acg Thr 2090 | cag Gln 2095 | gac Asp 2095 | tac Tyr 2095 | acc Thr 2095 | cgg Arg 2095 | cac His 2095 | cac His 2095 | 6288 |
| ccg Pro 2100 | cag Gln 2100 | cag Gln 2100 | ctc Leu 2100 | agt Ser 2105 | ggc Gly 2105 | ccc Pro 2105 | ctt Leu 2105 | ccc Pro 2110 | gcc Ala 2110 | cct Pro 2110 | ctc Leu 2110 | tac Tyr 2110 | tcc Ser 2110 | ttt Phe 2110 | ccc Pro 2110 | 6336 |
| gga Gly 2115 | gcc Ala 2115 | agc Ser 2115 | tgc Cys 2120 | cct Pro 2120 | gtg Val 2120 | ctg Leu 2120 | gat Asp 2125 | ctt Leu 2125 | cgc Arg 2125 | cgc Arg 2125 | cca Pro 2125 | ccc Pro 2125 | agt Ser 2130 | gac Asp 2130 | ctc Leu 2130 | 6384 |
| tac Tyr 2130 | ctc Leu 2130 | cca Pro 2135 | ccc Pro 2135 | ccc Pro 2135 | gac Asp 2135 | cat His 2140 | ggc Gly 2140 | acc Thr 2140 | cca Pro 2140 | gcc Ala 2140 | cgg Arg 2140 | gga Gly 2140 | tcc Ser 2140 | ccc Pro 2140 | cac His 2140 | 6432 |
| agt Ser 2145 | gaa Glu 2145 | ggg Gly 2150 | ggc Gly 2150 | aaa Lys 2150 | agg Arg 2150 | tcc Ser 2155 | cca Pro 2155 | gaa Glu 2155 | ccc Pro 2155 | agc Ser 2155 | aaa Lys 2155 | aca Thr 2160 | tcg Ser 2160 | gtc Val 2160 | ctg Leu 2160 | 6480 |
| ggc Gly 2165 | agc Ser 2165 | agt Ser 2165 | gag Glu 2170 | gat Asp 2170 | gcc Ala 2170 | att Ile 2170 | gag Glu 2175 | cct Pro 2175 | gtg Val 2175 | tcc Ser 2175 | cca Pro 2175 | cca Pro 2175 | gag Glu 2175 | ggc Gly 2175 | atg Met 2175 | 6528 |
| act Thr 2180 | gag Glu 2180 | cca Pro 2180 | gga Gly 2185 | cat His 2185 | gct Ala 2185 | cgg Arg 2185 | agc Ser 2185 | gct Ala 2185 | gtg Val 2190 | tac Tyr 2190 | cca Pro 2190 | ctg Leu 2190 | ctg Leu 2190 | tat Tyr 2190 | cga Arg 2190 | 6576 |
| gac Asp 2195 | ggg Gly 2195 | gaa Glu 2195 | cag Gln 2200 | ggc Gly 2200 | gag Glu 2200 | ccc Pro 2205 | agg Arg 2205 | atg Met 2205 | ggc Gly 2205 | tct Ser 2205 | aag Lys 2205 | tct Ser 2205 | cca Pro 2205 | ggc Gly 2205 | aac Asn 2205 | 6624 |
| acc Thr 2210 | agc Ser 2210 | cag Gln 2215 | ccg Pro 2215 | cca Pro 2215 | gcc Ala 2215 | ttc Phe 2215 | ttc Phe 2215 | agt Ser 2220 | aag Lys 2220 | ctg Leu 2220 | act Thr 2220 | gag Glu 2220 | agc Ser 2220 | aac Asn 2220 | tcc Ser 2220 | 6672 |
| gcc Ala 2225 | atg Met 2225 | gtg Val 2230 | aag Lys 2230 | tcg Ser 2230 | aag Lys 2230 | aag Lys 2235 | cag Gln 2235 | gag Glu 2235 | atc Ile 2235 | aac Asn 2235 | aag Lys 2240 | aaa Lys 2240 | ctc Leu 2240 | aac Asn 2240 | acc Thr 2240 | 6720 |
| cac His 2245 | aac Asn 2245 | cgg Arg 2245 | aac Asn 2250 | gag Glu 2250 | cca Pro 2250 | gaa Glu 2250 | tac Tyr 2250 | aat Asn 2250 | att Ile 2250 | ggc Gly 2255 | cag Gln 2255 | cct Pro 2255 | ggg Gly 2255 | acg Thr 2255 | gaa Glu 2255 | 6768 |
| atc Ile 2260 | ttc Phe 2260 | aac Asn 2260 | atg Met 2265 | ccc Pro 2265 | gcc Ala 2265 | atc Ile 2265 | act Thr 2265 | gga Gly 2265 | gca Ala 2270 | ggc Gly 2270 | ctt Leu 2270 | atg Met 2270 | acc Thr 2270 | tgt Cys 2270 | aga Arg 2270 | 6816 |
| agc Ser 2275 | cag Gln 2275 | gcg Ala 2280 | gtg Val 2280 | caa Gln 2280 | gaa Glu 2280 | cac His 2280 | gcc Ala 2285 | agc Ser 2285 | acc Thr 2285 | aac Asn 2285 | atg Met 2285 | ggg Gly 2285 | cta Leu 2285 | gag Glu 2285 | gcc Ala 2285 | 6864 |
| att Ile 6912 | att Ile 6912 | aga Arg 6912 | aag Lys 6912 | gca Ala 6912 | ctc Leu 6912 | atg Met 6912 | ggg Gly 6912 | aaa Lys 6912 | tat Tyr 6912 | gat Asp 6912 | cag Gln 6912 | tgg Trp 6912 | gaa Glu 6912 | gag Glu 6912 | ccc Pro 6912 | 6912 |

2290

2295

2300

ccg ccg ctc ggc gcc aat gct ttt aac cct ctg aat gcc agc gcc agt 6960
Pro Pro Leu Gly Ala Asn Ala Phe Asn Pro Leu Asn Ala Ser Ala Ser
2305 2310 2315 2320

ctg ccc gct gct gct atg ccc ata acc act gct gac gga cgg agt gac 7008
Leu Pro Ala Ala Ala Met Pro Ile Thr Thr Ala Asp Gly Arg Ser Asp
2325 2330 2335

cac gca ctc acc tcg cca ggt gga ggt ggg aaa gcc aag gtc tct ggc 7056
His Ala Leu Thr Ser Pro Gly Gly Gly Gly Lys Ala Lys Val Ser Gly
2340 2345 2350

aga cct agc agc cga aaa gcc aag tcg cca gca cca ggc cta gcg tcc 7104
Arg Pro Ser Ser Arg Lys Ala Lys Ser Pro Ala Pro Gly Leu Ala Ser
2355 2360 2365

gga gac cga ccc cct tct gtc tcc tca gta cac tca gag ggg gac tgc 7152
Gly Asp Arg Pro Pro Ser Val Ser Ser Val His Ser Glu Gly Asp Cys
2370 2375 2380

aat cgc cga aca cca ctc acc aac cgt gtg tgg gag gac cgg ccc tca 7200
Asn Arg Arg Thr Pro Leu Thr Asn Arg Val Trp Glu Asp Arg Pro Ser
2385 2390 2395 2400

tct gca ggg tcc acg cca ttc ccc tac aac cct ttg att atg agg cta 7248
Ser Ala Gly Ser Thr Pro Phe Pro Tyr Asn Pro Leu Ile Met Arg Leu
2405 2410 2415

cag gca ggt gtc atg gcc tcc ccg ccc cca cct ggc ctt gcg gca ggc 7296
Gln Ala Gly Val Met Ala Ser Pro Pro Pro Pro Gly Leu Ala Ala Gly
2420 2425 2430

agc ggg ccc cta gct ggt ccc cac cac gcc tgg gat gag gag ccc aag 7344
Ser Gly Pro Leu Ala Gly Pro His His Ala Trp Asp Glu Glu Pro Lys
2435 2440 2445

cca ctg ctg tgt tca cag tat gag aca ctc tcg gac agc gag 7386
Pro Leu Leu Cys Ser Gln Tyr Glu Thr Leu Ser Asp Ser Glu
2450 2455 2460

2290 2295 2300